# AMERICAN BEE JOURNAL

JUNE 1922

PORTION OF APIARY AT WEST SCOTLAND COLLEGE OF AGRICULTURE AT KILMARNOCK

You need our 1922 bee supply catalog more than ever before. Have you received one? Many new articles are listed for the saving of labor and greater honey production. Our attractive prices, superior quality and prompt service will always be appreciated by beekeepers.

Send a list of your requirements

to us

# THE FRED W. MUTH COMPANY

**Pearl and Walnut Sts., Cincinnati, Ohio**

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# THE DIAMOND MATCH CO.

**(APIARY DEPT.)**

**MANUFACTURERS OF**

## Beekeepers' Supplies

**CHICO, CAL., U. S. A.**

Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.

**EASTERN DISTRIBUTORS**

**HOFFMAN & HAUCK, 1331 Ocean Ave.**
**WOODHAVEN, N. Y.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to the Diamond Match Co. for prices and for their Beekeepers' Supply Catalog.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

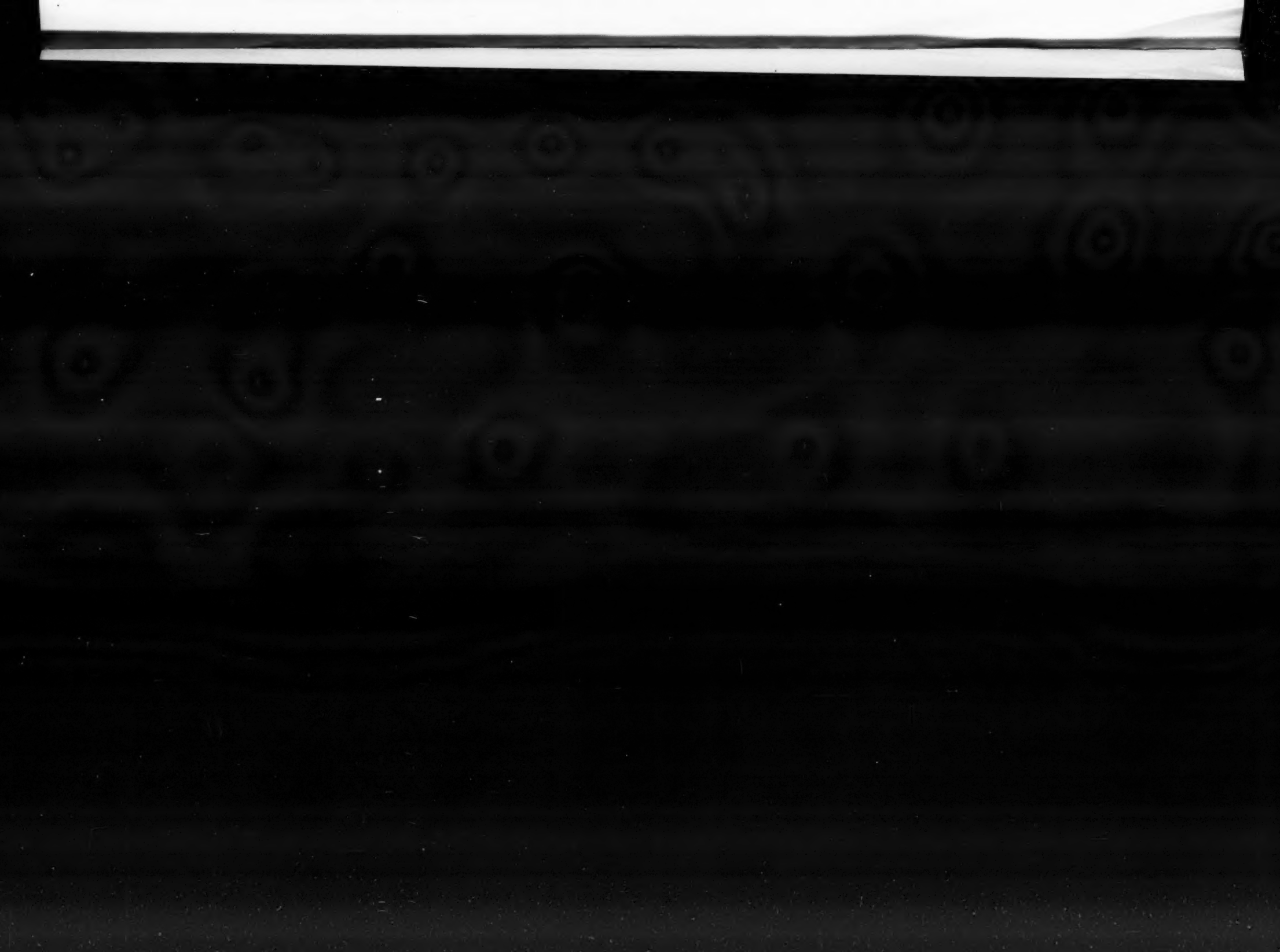
The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**ALUMINUM HONEYCOMBS**

The Diamond Match Co. and their agents are the sole distributors in the United States of the Aluminum Honeycombs, manufactured by the Duffy-Diehl Co., Inc., of Pasadena, Calif. Write for descriptive pamphlets. Eastern beekeepers should send their orders for the Diamond Match Co.'s supplies to Hoffman & Hauck, 1331 Ocean Avenue, Woodhaven, N. Y.

## DIAMOND MATCH CO., Apiary Department

**CHICO, CALIFORNIA**



NEW BINGHAM BEE SMOKER
PATENTED

BIG SMOKE

BIG SMOKE—WITH SHIELD FIRE POT, 4x10

NEW BINGHAM BEE SMOKER

SMOKE ENGINE—FIRE POT 4x7

WOODMANS FAMOUS BEE-WARE

# THE SMOKER YOU OUGHT TO OWN

THE most important invention in beekeeping, as little can be accomplished without the Bee Smoker.

The **New Bingham Smoker** is the most efficient and durable machine on the market.

The standard for over 40 years in this and many foreign countries, and is the all important tool of the most extensive honey producers of the world.

Comes with metal legs, metal binding and turned edges. The four larger sizes have hinged covers. The fire grate is of very substantial material, with an abundance of draft holes, the 4-inch size having 381 holes, equal to an opening 2 inches square.

A valve in the bellows of the larger sizes makes the Smoker respond to the most delicate touch.

The new Bingham comes in six sizes, including the Big Smoke, which is furnished both with and without shield. The larger sizes are best, as they hold more fuel, give more smoke, require filling less often, and are especially recommended to those who work with their bees several hours at a time.

Write for our complete catalog of bee supplies and accessories. Special circular of all sizes of Bingham Smokers free for the asking.

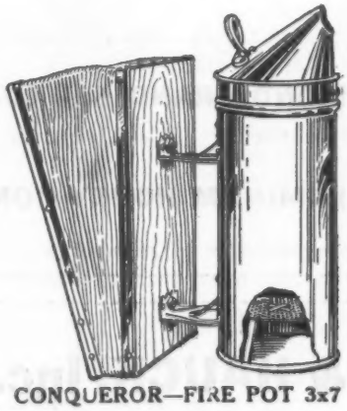
## A. G. WOODMAN CO.

240 SCRIBNER AVE., N. W.

GRAND RAPIDS, MICH., U. S. A.

NEW BINGHAM BEE SMOKER

DOCTOR—FIRE POT, 3½x7



CONQUEROR—FIRE POT 3x7

LITTLE WONDER—FIRE POT 3x5½

A SUPERIOR QUALITY AT LESS COST

# SUPPLIES

A SUPERIOR QUALITY AT LESS COST

(MADE BY THE DIAMOND MATCH CO.)

**Reason why our Prices are Reasonable**

1. Our supplies are brought to us in cargo lots by steamer from California through the Panama Canal. The resulting saving in freight cost is passed on to our customers.

## One Story Complete Dovetailed Hives

With metal telescope cover, inner cover, reversible bottom Hoffman frames, nails, rabbets.

### STANDARD SIZE

Crate of five, K. D. 8-frame ---------- $12.65
Crate of five, K. D. 10-frame ---------- $13.25

### JUMBO SIZE

Crate of five, K. D. 10-frame ---------- $14.25

### FULL DEPTH HIVE BODIES

frames, nails, rabbets.

Standard size, crate of five, K. D. 8-frame ---------- $5.20
Standard size, crate of five, K. D. 10-frame ---------- 5.85
Jumbo size, crate of five, K. D. 10-frame ---------- 6.85

### SHALLOW EXTRACTING SUPERS

with Frames, Nails, Rabbets

Crate of five, K. D. 8-frame ---------- $3.90
Crate of five, K. D. 10-frame ---------- 4.25

### HOFFMAN FRAMES

Standard size ---------- 100, $5.20; 500, $25.00
Shallow ---------- 100, $4.30; 500, $21.00
Jumbo ---------- 100, $5.80; 500, $28.00

### DIAMOND BRAND FOUNDATION

Medium, 5 lbs. 68c lb.; 50 lbs. 65c lb. Thin super, 5 lbs. 75c lb.; 50 lbs. 72c lb.

### ALUMINUM HONEY COMBS

Standard Langstroth ---------- $5.00 box of 10
Shallow Extracting ---------- $4.00 box of 10
Jumbo ---------- $6.00 box of 10

**HOFFMAN & HAUCK, Inc., Woodhaven, N. Y.**

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**Lewis 4-Way Bee Escapes**

Four exits from supers. Fits all standard boards. Springs of coppered steel. Made of substantial material. Price each 18c, postpaid.

**Made by**
**G. B. LEWIS COMPANY**
**Watertown, Wis., U. S. A.**
**For Sale by All Dealers.**

## High Quality Queens, by Return Mail

Untested queens, 1, $1; 6, $5.50; 12, $10; 25, $20. Select untested, 1, $1.20; 6, $6.50; 12, $12; 25, $23.50. Select tested, $2 each.

Nuclei and package bees: 2-frame nucleus, $3.25; 3-frame nucleus, $4.50; 1-lb. package, $2; 2-lb. package, $3.25; 3-lb. package, $4.50. Add price of queen wanted. Safe delivery and fullest satisfaction guaranteed. Health certificate furnished with each shipment.

**FRANK BORNHOFFER, Mt. Washington, Ohio**

## HONEY SECTIONS

Just a reminder that our sections are made from Northern Wisconsin Basswood. This makes them **Just a Little better.** This basswood is all winter sawed. That's why our sections are **Just a Little Whiter** and look **Just a Little Better.** We are working overtime to give our customers **Just a Little Better Service.**

We have a full line of hives, supers, hive bodies, frames, foundation and all Standard Supplies that are **Just a Little Better.** Get our Catalog and know why.

**AUGUST LOTZ COMPANY, Boyd, Wisconsin**

## TIN CANS

It is our opinion that tin cans have "hit the bottom." Prices are far below last year. 2½ lb. cans, 5 lb. and 10 lb. pails furnished in dust proof cartons of 100 and 50; also in re-shipping cases of 6, 12 and 24. Five-gallon cans in strong cases that will stand reshipping. Write for our prices, stating number and sizes wanted.

**Dadant & Sons, Hamilton, Illinois**

THREE

BANDED

## I PAY THE TRANSPORTATION CHARGES ON PACKAGE BEES

1-pound package, including young three-banded queen..... **$4.50**
2-pound package, including young three-banded queen..... 6.00
3-pound package, including young three-banded queen..... 7.50
25 cents per package less for twelve or more packages.
Delivered to your address via parcel post.

In comparing my prices with others, take in consideration you have no express charges to pay. Parcel post shipments go through quicker.

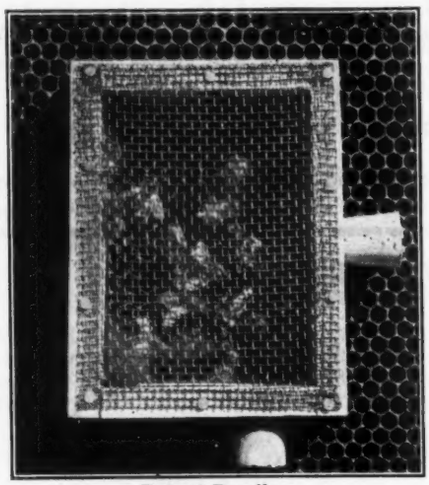
Prices of Queens after May 15:

1 select untested ..... $1.00
5 select untested ..... $4.75
10 select untested ..... $8.50
25 or more ..... 75c each

Orders filled by return mail.
Pure mating and satisfaction guaranteed. It is left with customer to say what is satisfaction. No disease.

**JASPER KNIGHT, Hayneville, Ala.**

# SAVE THOSE QUEENS



Patent Pending

A large percentage of queens are lost through faulty methods of introduction, and many more are injured so that they produce little or no honey, where they would have produced several hundred pounds if they had been properly introduced. The Jay Smith cage will introduce every one with absolutely no injury, if the simple directions are followed.

It will introduce virgins to full colonies, and it will introduce either virgins or laying queens to laying-worker colonies. It will save many times its cost in a season. Hundreds of these cages have been used all over the U. S. with unqualified success.

J. E. Crane, one of America's foremost beekeepers, writes: "It is the best of anything I have seen." M. H. Mendleson, of California, than whom there is no higher authority upon this subject, after purchasing 200 of these cages, writes: "From extensive experiments in introducing many queens, we have had perfect success, never losing a queen nor having a single failure with the Smith cage. We have even had entire success in introducing queens to laying-worker colonies." The cage is well made and should last a lifetime if taken care of. Price, postpaid, 75 cents. Write for descriptive circular.

**JAY SMITH, Route 3, Vincennes, Ind.**

# A NEW SELLING HELP

A four-page leaflet in five colors, with two pages of concise information about honey and one page of recipes, to place in the hands of your customers.

The information which you wish to convey to the consumer is condensed into brief paragraphs which he can quickly and easily read.

The attractive picture in colors on the first page will catch and hold his attention until he has read your message.

Every honey producer should have a supply of these leaflets for general distribution.

Price, with your name and address printed on first page, 500 for $6.50, or 1,000 for $10. Each additional 1,000, $8.50.

**Send for free sample today**

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

Absd: Edgar Boedicker
Breisgau
The A. I. Root Co. of Iowa
Council Bluffs, Iowa
Ver. Staaten v. Nord-Am.
The A. I. Root Co. of Iowa
Council Bluffs, Iowa
Gentlemen—Kindly send me your free booklet, "Why Bees Prefer Airco Comb Foundation." I would be interested in getting your price on ... pounds of ... Foundation.
Name Edgar Boedicker
Address St. Georgen im Breisgau
The A. I. Root Co. of Iowa
Council Bluffs, Iowa

**Mr. Edgar Boedicker—Germany—Got his Copy**

# "Why Bees Prefer Airco Foundation"

# HAVE YOU?

He wants to know about the interesting experiments conducted, which proved conclusively that bees take to Airco first—why it will increase his yield and, in a season's time, save him real money. That's why he sent the Service Coupon to us.

Have you got **your** supply of Airco? We are milling it at Council Bluffs, Iowa. Let us quote on your season's needs.

**SERVICE COUPON**

A. I. Root Co., of Iowa,
Council Bluffs, Iowa.

Gentlemen: Kindly send me your free booklet, "Why Bees Prefer Airco Comb Foundation."

I would be interested in getting your price on ---------- pounds

of ---------- foundation.

Name ----------

Address ----------

**THE A. I. ROOT CO. OF IOWA**
**COUNCIL BLUFFS, IOWA**

## MORE ABOUT THE QUARANTINE

By Francis Jager

I am perfectly in accord with Dr. Phillips, Mr. Sanders, Mr. Millen and Mr. Carr, for a rigid quarantine against the Isle of Wight disease, or any other disease. A law to that effect should be passed immediately. However, like all regulatory measures, the law ought to be made reasonable and just, and it looks to me to be the limit of unreasonableness to extend the quarantine to the whole world, when the disease exists only in England and France. I do not believe an intelligent legislature would knowingly place an embargo against Canadian imports of potatoes, for instance, if a new potato disease had been discovered in Mexico, nor will Congress, if properly informed, ever prohibit importation of queen bees from Italy, or the Balkans, so long as the Isle of Wight disease exists only on the other side of the continent.

With the Italian race of bees well established in this country, a doctrine has gone forth that the beekeepers of the United States have simply to settle down and be for all time contented and satisfied that the Italian bee, and the Italian bee only, is the bee for the United States and Canada, and that she is equally well adapted for Florida, California, or Northern Michigan. No, you may not, in order to be orthodox, import or experiment with other races of bees. You may not, for instance, say a cold northern climate demands a hardier bee than that in the hot, sub-tropical South. And to be orthodox means that you must not think, judge or experiment for yourself, but just repeat the ABC after your teachers.

I believe the beekeepers, in their own interests, ought to write the Postoffice Department at Washington, and inform them of the facts in the case, to prevent it from establishing, through ignorance of facts, any such sweeping and ill-considered measure.

Minnesota.

### Colorado Summer Meeting

Annual Field Meeting of the Colorado Honey Producers' Association will be held at Longmont, Colo,, Saturday, June 3, commencing at 10 a. m. It is expected that there will be a heavy attendance, as the neighboring county organizations are invited to hold their Field Meeting with us at the same place. We also expect to have the loan of the recently finished Government film, "Bees; How They Live and Work," and some other attractions. Beekeepers are expected to bring their lunch, but refreshments will be furnished by the Association. Everybody is welcome, whether a member of the Association or not, just so they are interested in beekeeping.

Frank Rauchfuss, Sec.

### Another New One

Christian County, Illinois, beekeepers organized a local association on May 6, with Frank Bishop President, Jos. Bearden Vice President, and W. H. Stumm Secretary.

# TENNESSEE-BRED QUEENS

**Fifty Years' Experience in Queen-Rearing**
**Breed Three-Band Italians Only**

| | Nov. 1 to June 1 | | | June 1 to July 1 | | | July 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2 00 | $ 8 50 | $15 00 | $1 50 | $ 7 50 | $13 50 | $1 25 | $ 6 50 | $11 50 |
| Select Untested | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 16 00 | 1 50 | 7 50 | 13 50 |
| Tested | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 27 00 |

Select tested, for breeding, $7.50.

The very best queen, tested for breeding, $15.

Capacity of yard, 6,000. I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

## JOHN M. DAVIS, Spring Hill, Tenn.

"Five colonies of your stock produced 2,660 finished sections—the best one 616 finished sections." JOHN M. BIXLER, Corning, Iowa, February 1, 1921.

## SELECT ITALIAN QUEENS

Red clover strain; prolific, gentle and great honey gatherers. Get your order in early; will have them to ship after March 10. Untested, $1.25; select untested, $1.50; tested, $2.50.

Write for price on package bees.

**V. G. MILLER, Mathis, Texas.**

## MONEY AND SATISFACTION FOR YOU

Save one profit by buying direct from factory. Standard, Jumbo and Modified Dadant Hives; cedar or pine. Write for catalog.
**A. E. Burdick Co., Sunnyside, Wash.**

## PORTER BEE ESCAPE SAVES HONEY TIME MONEY

**For sale by all dealers**
**If no dealer, write factory**

**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**

**(Please mention Am. Bee Journal when writing)**

## MAY QUEENS

**Priced Right. Quality Guaranteed**

Untested, $1.20 each; 12 or more $1 each. Select untested, $1.50. Tested $2. No disease.

**D. W. HOWELL**
**Shellman, Ga. Box B5.**

# QUEENS

**10 Per Cent Off. The same Good Queens for Less Money.**

Pure three-band only. Select breeding; Best methods and equipment used. Strong three-frame mating nuclei, hence natural colony condition. Try them; they will prove it.

After June 1st prices:

Untested, 1 to 12, $1 each; 13 to 25, 90c each; 26 to 100, 80c each. Select untested add 25c per queen. Tested, $1.50; select tested, $2 each.

Send 20 per cent to book, balance before shipment wanted. We guarantee: No disease, prompt service, pure mating, safe arrival and complete satisfaction. Try us, we will stand the test. So will our queens.

## Jensen's Apiaries

CRAWFORD MISS.

Route 3

**QUEENS OF**

# Moore's Strain

OF ITALIANS PRODUCE WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.
Untested queens, $1.50; 6, $8; 12, $15.00
Select tested, $2.00; 6, $10.00; 12, $19.00
Safe arrival and satisfaction guaranteed.

Circular free.

**J. P. MOORE, Queen Breeder**
Route 1, Morgan, Kentucky.


### Montana Meetings

The Montana beemen will meet at Billings on June 10, for a field meeting and will hold another at Hamilton, Mont., on June 12, with E. W. Atkins as the star attraction.

### Boys Will Learn Beekeeping

The Boys' Busy Life Club, of Milwaukee, will have a course in beekeeping at the camp on Lake Keesus, this summer. Mr. H. C. Achtenhagen will have charge. The Busy Life Club aims to keep the boys so busy with things of real interest that they will not have time for pool halls and other loafing places where time is worse than wasted.

Boys who thought beekeeping would be a dry subject became much interested at the time of the winter lectures and wanted to know more about the subject.

### Internal Revenue Permits Needed for Manufacturing Honey Vinegar For Sale

There is some question about the prohibition law as it affects the manufacture and sale of honey vinegar. An inquiry, addressed to the Bureau of Internal Revenue, Treasury Department, Washington, D. C., brings the following reply:

All persons desiring to manufacture vinegar for sale from honey by a process of fermentation, which produces first an intoxicating liquor, must apply on Form 1404 for a permit to manufacture intoxicating liquor and file bond on Form 1408 or 1409. Form 1408 is a surety bond and Form 1409 is a collateral bond. Permit is then issued on Form 1405.

The necessary forms are procurable from the Bureau of Internal Revenue and directions for the filing of the application and bond are given in Articles 3 and 5 of Regulations of the same Bureau. Copies are obtainable on request.

In addition to these regulations the Bureau of Chemistry of the United States Department of Agriculture has published a "Food Inspection Decision" on the labeling of vinegars. No definition is given in this decision for honey vinegar, but it is the opinion of the Bureau that the term "Honey Vinegar" is only applicable to a product made from the alcoholic and subsequent acetous fermentations of honey, and should contain not less than 4 grams of acetic acid per 100 cubic centimeters. It is therefore sufficient for the manufacturer of honey vinegar to ascertain if the product has the required acid strength. There is a test for this which is fairly simple for one familiar with chemistry, but as it requires some experience and instruction to make the test and the necessary equipment costs $10 to $20, it is better to have some commercial chemist do the work. There is no simple test for the layman.

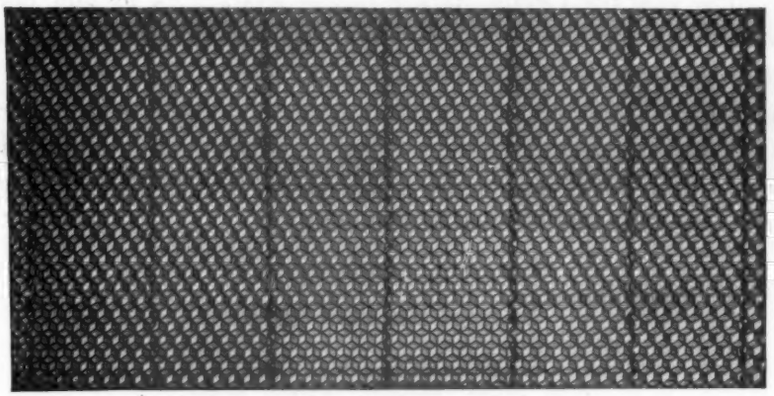
It is also understood that the laws of the various states prescribe standards for vinegar which may be sold within their jurisdiction. Inquiry should be made directly of the State Departments concerning this.

# ANOTHER STEP FORWARD

## DADANT'S WIRED NON-SAG BROOD FOUNDATION

**As it Comes from the Box—Ready Wired**

Cuts out cost and Labor of Hand Wiring

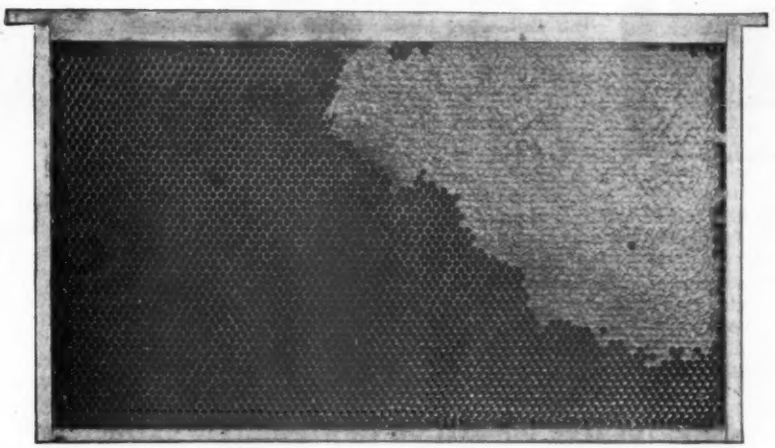


Quickly Accepted by Bees without Reservation

The crimped wires give radiating support

**The Finished Comb**

Makes Non-Sag All-Worker Comb



The Finished Comb a Delight to the Eye

Note completeness of comb and absence of sagging.

**TESTED BY TIME AND USE.** Dadant's Wired Foundation is not an experiment of a few months' time, but is a carefully evolved specialty of a life-time of foundation specialists. It has also been thoroughly tested for several years in large apiaries in all parts of the United States.

**DADANT'S WIRED FOUNDATION** may be used in new-style split bottom-bar frames or in the old-style one-piece bottom-bar frames with equal satisfaction. It is also adaptable to any size and style of brood or extracting frame.

**COSTS NO MORE.** Since Dadant's Wired Foundation cuts out the cost and labor of wiring, its extra price of three cents per pound above the catalog prices of old style foundation is thus more than returned to the beekeeper.

**ASK FOR SAMPLES.** A small mailing sample sent free on request. **Special Offer:** A sample of seven sheets, for either split bottom-bar or old style one-piece bottom-bar frames will be sent, postpaid, to any address in the United States for $1. Specify size desired. Only one sample to a person.

**Wired Foundation is sold by all distributors of Lewis "Beeware" and Dadant's Foundation. Send them your orders.**

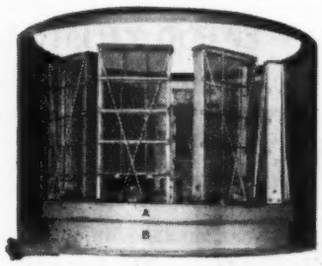
## DADANT & SONS, HAMILTON, ILLINOIS

***Catalog and Prices on Foundation, Bee Supplies, Beeswax, Wax Working into Comb Foundation and Comb Rendering for the asking***

# More Honey—More Money

¶ How much honey do you put back on the hives in the combs after you extract? Do you know that the Lewis-Markle power extractors extract combs clean because of the vacuum principle? Do you know this machine is now made in 4-frame sizes, one to take Langstroth frames and the other with 12-inch baskets? The baskets are interchangeable, They can be removed instantly without unfastening anything. The tank lifts off and the gate may be pointed on any spot. All machinery is underneath with no vibration and cannot be touched by honey. Could any machine be more sanitary? The extractor marvel of the century.

## Special Bargain Offer



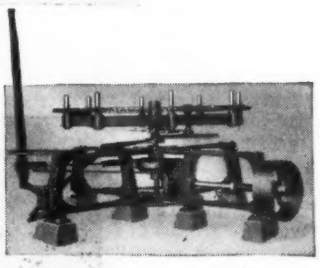
Showing tank cut away. Part A revolves, part B remains stationary.

**A modified Dadant hive with metal roof cover, regular bottom board, with frames without foundation one story, K. D. (Catalog No. C2176), one to a buyer only, sent as far as the third parcel post zone from any of the following cities, POSTAGE PREPAID, offer open until June 20, 1922, at $5.00 EACH.**

**Add $1.00 for American Bee Journal one year.**

**Watertown, Wis.; Albany, N. Y.; Lynchburg, Va.; Memphis, Tenn.; Wichita, Kans., Hamilton, Ill., Fromberg, Mont.; San Antonio, Tex.**

Send all orders direct to G. B. Lewis Company, Watertown, Wis.



Showing tank removed. Note sturdy machinery. No weight above tank.

**Send for free booklet on Lewis-Markle extractors**
**Send for free booklet on Modified Dadant hive**

**Two new booklets "How to Produce Comb Honey" and "How to Produce Extracted Honey"---5c each**

BEE HIVES AND APIARIAN EQUIPMENT
BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U.S.A.
MAKES THE FINEST.
COPYRIGHT, 1916, BY G.B.LEWIS COMPANY

# G. B. LEWIS COMPANY

**HOME OFFICE AND WORKS**
**WATERTOWN, WIS., U. S. A.**
*Distributors Throughout the U. S. A.*

**BRANCHES: MEMPHIS, TENN., ALBANY, N. Y., LYNCHBURG, VA., WICHITA, KANS., DENVER, COL., FROMBERG, MONT.**

AMERICAN BEE JOURNAL

VOL. LXII—NO. 6 HAMILTON, ILL., JUNE, 1922 MONTHLY, $1.50 A YEAR

# EVERY STEP WITH EUROPEAN FOULBROOD

## With Suggestions for Its Detection and Treatment

By G. H. Cale

IN some respects, European foulbrood is a will o' the wisp, appearing and disappearing in a most disconcerting manner, sometimes running a ruinous course through an entire apiary, at other times confined to only a few colonies. In what hidden nook does it perpetuate its constant life? It is not until we study the habits and environment of the disease that the apparent mystery of it is removed.

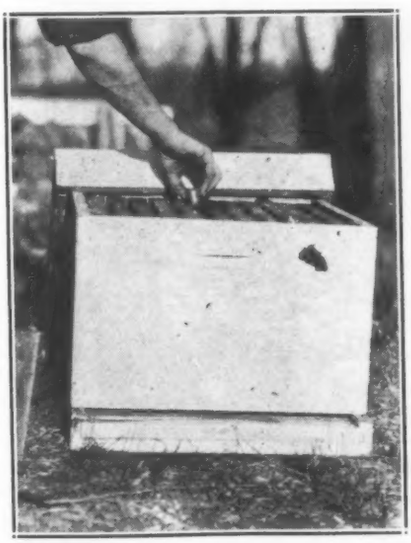
Quite a number of facts are now known about European foulbrood which, a few years ago, were unknown or uncertain. It was formerly believed that no colony was immune to its attack but the experiences and observations of Alexander, Dr. Miller, and others, together with the researches of White, Sturtevant and Phillips, have shown that it is largely a disease of weak colonies and that black and hybrid bees are especially susceptible to it. Strong colonies of Italian bees easily overcome it, without ill effects, and therein lies the basis of its successful control.

Phillips has recently shown, also, that it is most prevalent in regions where the environment is most favorable to its development. Wherever the conditions are such that bees do not build up rapidly in spring and early summer it is especially disastrous. Early honeyflows, by aiding colonies to increase rapidly in population, keep the disease in check and, in such favorable locations, it will be confined largely to colonies which are weak by reason of poor beekeeping and poor wintering.

### Appearance of the Disease

In contrast to American foulbrood, European attacks the brood at a much younger stage in its development, while the larvae are still coiled in the cells. Comparatively few capped larvæ are affected. It does not confine itself to worker larvae, like American, but is equally damaging to the larvae of drones and queens.

Among the first signs of its presence is an abnormal position of the larvae. They may not be coiled nicely in the bottom of the cells but may lie towards the sides, often partly uncoiled, with points or backs outward, just as they would be forced from place by a vigorous shaking of the frame. The pearly, glistening whiteness of the body changes to a partial watery transparency, often with a grayish cast. The plumpness which makes the body rings of the healthy larvae so well marked, disappears and the flesh looks sagged and flabby, accompanied by a veining of white lines where the breathing tubes, (tracheae) show through.



Placing queen cage between the frames.

After death, the substance of the body changes to a yellow pasty mass, which slowly loses its moisture, becoming darker in color, often resembling the color of coffee, until a brownish, dry scale, with the lines of the breathing pores usually still showing, is all that remains. This scale is loosely fastened to the cell, often shaking out readily, and always removable if the scale is picked or disturbed. This is a most fortunate fact since a constant and thorough housecleaning, leaving brightly polished cells, eliminates the diseased material, with little danger of further infection.

This is an important contrast because, where American foulbrood is present, the cleaning of cells is impossible due to the gluelike hold which makes the disease scales and the wax almost of one piece. However, if these scales could be easily cleaned out, it probably would not result in stopping the disease by reason of another important contrast which has to do with the organisms causing the two diseases. The bacillus which is responsible for American foulbrood (**B. larvæ**), is capable of protecting itself for long periods in unfavorable surroundings while the bacillus of European foulbrood, (**B. pluton**), has no such power. It quickly dies if it becomes dried, or heated by the sun, or if it is without food. The constant cleaning of cells and the removal of scales, therefore, places the bacilli in just such environment where they soon perish. This characteristic, together with the looseness of the scale, is a most happy combination and at once makes of European

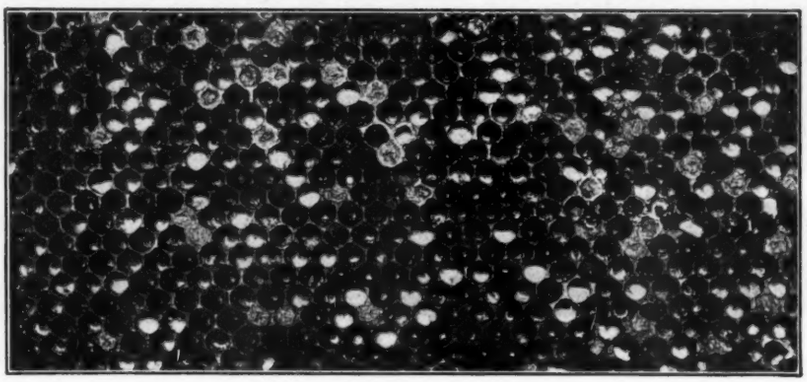
foulbrood a disease of secondary importance.

**Putrefactive Infection in European Foulbrood.**

Yet, notwithstanding this favorable description, the fact remains that European foulbrood has been more feared than American. A clear case of American is a clear case, but a clear case of European is "mighty uncertain" because it is often not common to find clear cases, especially in districts where the disease has been long prevalent and persistent. This is due to the presence of other organisms which are associated with the disease in a secondary way (chiefly **B. alvei**), organisms which feed on the tissues of the larva after it has been weakened or killed by **Bacillus pluton,** causing a rotting or putrefaction, which changes the outward appearance of the diseased material. When especially abundant, these organisms seem to delay the progress of the disease so that many of the larvae may not succumb until they have extended in the cell and the cell has been capped by the bees. The caps of these cells later may become sunken and perforated, an appearance which is typical of American foulbrood. There may even be a sort of ropiness to the decaying mass beneath the caps.

It is no wonder, when this occurs, that beekeepers and even inspectors become confused and do not know whether they are confronted with American or European foulbrood. So persistent is this confusion in some localities that many beekeepers have been led to believe that there is only one disease, that what is called European is but a milder form of American. Nothing could be more contrary to the facts. But how is one to be sure of his diagnosis?

It is not easy to be sure and doubtful samples should, in all cases, be submitted to the Bureau of Entomology at Washington for Sturtevant's microscopical examination. In most cases, however, it is not so difficult to remove the confusion by keeping these facts in mind, (1) the scales in American foulbrood are fastened tightly along the lower cell walls in regular rows, with points up, like gondolas. European foulbrood scales are usually coiled in the cell bases but, where they extend along the lower cell walls, they are irregular in occurrence and easily removed. (2) The ropiness of American is thread-like, similar to that of thick syrup. Whatever ropiness there is in European is like that of a rotten rubber band which breaks off quickly and broadly. (3) In all confusing cases of European, there is some typical diseased material present which has no resemblance to American.



Appearance of larvæ in colony with European foulbrood.

**Mixed Infection.**

It has recently become clear also, according to Sturtevant (Journal of Economic Entomology, Vol. 14, No. 1) that it is not uncommon to find both brood diseases in the same hive and even in the same comb. Although the individual larva is the victim of only one of the diseases, its neighbor in the next cell may be the victim of the other. This is technically known as mixed infection and in cases of this kind typical appearances of both diseases are present.

The most successful treatment for mixed infection is to strengthen the bees to the point where they will clean out the European, as herein advised, and then, when conditions are right, to treat them for American by the usual "shaking" and removal of the infected material. (See "Every Step With American Foulbrood" in April issue.)

**The Treatment of European Foulbrood**

Since strong colonies of Italians can successfully clean out the diseased material, it is imperative in treatment, first of all, to insure the strength of the colonies. Strength, here, of course, refers to numbers of adult bees, and, more especially, to an abundance of young bees, whose particular labor is housekeeping. It is useless to treat weak colonies.

Colonies may be united until the brood and bees present will soon insure a large population. There should be bees enough to cover at least eight frames and the equivalent of four or five frames of brood, preferably emerging brood. A variation in uniting consists in shaking all the bees of two or three colonies onto one set of clean, healthy combs and stacking the brood above over an excluder, or over another diseased colony.

Where the disease is not seriously advanced, it may frequently be checked and cleaned out by giving frames of emerging brood to the diseased colonies. It is best to take such brood from colonies of good Italian stock which will not suffer too greatly by its removal. Continually strengthening in this way will soon remove infection.

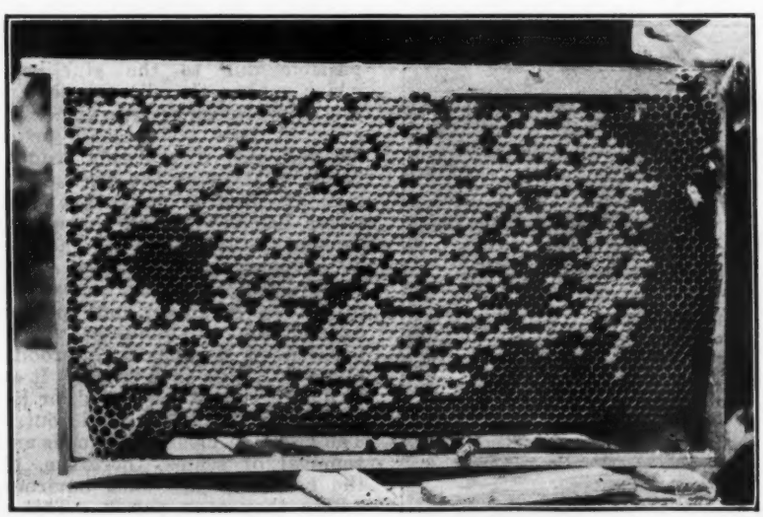
**Requeening.**

Except in strong Italian colonies with but slight infection, requeening is usually a necessary part of the treatment also. Colonies in which the queen is caged for ten days will soon polish out the cells, provided there is a sufficient force of Italian workers. At the end of this period, a young Italian queen may be introduced and there will usually be a good addition of young workers from her brood, after the third week, to care for the future prosperity of the colony.

There is no secret in the superiority of Italians over the blacks in this respect. It is explained simply by the fact that the Italians are better housecleaners and have less tolerance for filth.

**Time of Treatment.**

It is not clear just how the organ-



Giving frames of emerging brood greatly stimulates house-cleaning in colonies with European foulbrood.

isms of European foulbrood are able to live during winter when colonies are without brood and it is probable that, among their unprotected millions, great slaughter is caused by the extremes of this period. Only a comparative few live over in the warmth and moisture of the cluster. The first brood of the year usually escapes with but slight loss, therefore, since the multiplication of the disease organisms must be manifold before any serious infection can occur.

An increase of brood, affording an abundant food supply for the bacilli, favors the increase of infection until the disease reaches an advanced stage. The only check to its course lies in the excellence of the housecleaning and in the abundance of nectar. Concerning the latter, Sturtevant finds that a good honeyflow tends to eliminate the disease, due "to dilution of the infection because of the influx and direct feeding of fresh nectar to the larvæ."

The most favorable time, therefore, for colonies under treatment for European foulbrood to recover is early in the season's brood rearing when infection is still light and preferably at the time of a honeyflow.

**Prevention**

In European foulbrood, it is particularly true that "an ounce of prevention is worth a pound of cure," especially since that "ounce" means much more to the beekeeper than the avoidance of disease. Successful treatment demands that colonies be kept constantly at the highest possible point of efficiency—strong and of good stock—in fact, in exactly that favorable condition so essential to a maximum crop of honey. It is as Phillips states, "Good beekeeping will eradicate the disease." In favorable years it may occur in a few colonies, but normally it may surround the apiary constantly and do little or no damage. This was exactly the experience of that best of good beekeepers, Dr. C. C. Miller. To lose the fear and annoyance of European foulbrood, the beekeeper needs only to keep bees as Dr. Miller kept them.

## THE HUBER LETTERS

### Precautions to Be Used in Observing Bees

May 17, 1829.

Dear Eliza:

In a letter which has been misplaced, the question was, I believe, concerning the precautions to be used in beginning to observe bees; the first is to examine them from the side, in front one would run the risk that, upon their return from the field, one of them should get caught in your hair and sting you, in its irritation from being unable to escape from this net at its will. 2nd. You must not, in observing them, have the sun before your eyes, the direct light blinds, while if it is reflected one may observe better and more quietly. 3rd. One must not make quick motions near the hives nor permit others to make any. 4th. The hive which you observe must have shutters which may be opened and closed without jars or noise and which must be opened only during the observation; a continuous light would displease the bees and might determine them to establish curtains of wax inside, upon the panes which, blotting out their transparency, would render observations impossible.

Double flowers have no stamens and, therefore, no pollen; if you wish to please your bees, establish for them a bed of simple flowers which have all that is needed, sow buckwheat, rape, **Reseda luteola,** crimson clover, &c; that will be good for the days when you would not wish them to wander far from home. In the fine days they will not stop much upon the flowers within easy reach, as they will be more powerfully attracted by the great masses of flowers; it is upon our meadows and wherever there are flowers that you will see them rush and scatter in order to bring back to you their best crop.

Your glass hive must have a roof that will keep the moisture from it.

### To Mrs. De Portes

**Hood for the Visit to the Hives. Swarm in a Flue. Uselessness of Noise to Stop Swarms**

Dear Madam:

I am at this moment in receipt of a letter from your spinster sister, which relieves me of a great anxiety; imagine that I wrote 6 letters in succession addressed to Bois-d'Ely without getting any reply and that I had concluded that you were all sick and that perhaps my young correspondent, a victim of her curiosity or of some imprudence, had been too ill-treated by the bees to write about it to her unhappy friend; there was nothing of the kind, thanks to the Lord.

I have upbraided myself for having failed to tell her of all the accidents which might follow too intimate an acquaintance with these interesting, but we must say also formidable beings; the word "hood," for instance, has not been mentioned in any of my letters, it should have been written in all of them. It is a large veil with which one covers oneself when visiting a pest-house or when one causes a little vexation to the bees. It must be sewed around a broad round hat which keeps the bees sufficiently far from the face and from the neck. It is made of a very transparent muslin with broad sleeves that fasten to the wrists and are terminated with thick woolen gloves, that should be at least three lines thick so that the sting, which is only 2½ lines long, cannot reach the skin; the very loose tissue of these gloves permits the bees to withdraw their sting and thus save their lives. The lower part of the hood should reach down to the waist and be fastened there firmly, so the bees may not reach the upper part of the body. To protect the lower limbs, high shoes are useful. I beg pardon for all these details.

For want of having followed this advice rigidly, Burnens, my very faithful Burnens, was once stung on the face, on the neck and on the breast, by so great a number of bees that a high fever followed, changed to a quartan fever (ague) with which he suffered for nearly a year, but which, however, did not prevent this good man from continuing his occupations with the bees; he gave them his attention and his cares, in the intervals of the attacks. Tell all this to your kind Elisa.

Please also tell her that I several times wished to take possession of a swarm which has unfortunately established its home in a chimney flue; but that, considering the great danger of this operation for a gardener or a chimney-sweep, even the most skillful and boldest, I have not attempted to secure them out of this singular abode and I still believe the deed impossible or too dangerous. Let us leave those bees then, to their unhappy fate; if fire is built in the chimney, the smoke will soon smother them; if no fire is made and they are left alone, they may swarm next year, or perhaps even this year; we will only need to watch them.

The custom of beating kettles and caldrons has been practised at all times and I believe everywhere, and I do not understand any better than you do what influence it could have.

Note: 1. Aristotle, who lived over 2200 years ago, tells, in his "Story of Animals," Lib. IX: "Bees seem to have a liking for noise and from this observation it is claimed that, by making a noise and striking upon earthen jars, one can gather the swarm in the hive. However, whether they hear or not, we do not know whether it is pleasure or fear which induces them to gather together when there is a noise."—(Editor.)

The bees which are hived in glass hives do not seem to take any notice of thunder. I have caused the beating of drums about my apiary and, although I used, to make a noise, all the cauldrons, the watering-pots and the bells, that has never succeeded in stopping a flying swarm for me; one succeeds a great deal better in this by throwing at them water or dirt. This prejudice has perhaps been established for the benefit of bee owners, who, knowing through this noise that a swarm is out, soon ascertain whether it has escaped from their apiary and may claim it; I have seen that reason in Oliver De Serres' or in some other agricultural book.

### Cheap Paint for Bee Hives

Resin 4 or 5 parts; Beeswax 1½ to 2 parts; linseed oil 1 to 1½ parts. It should be applied hot also wood should be hot. It is best applied with a small paint brush over a hot oil stove or dipped in tank of boiling wax before nailing. There is nothing more resistant to water than this formula for making wooden water tanks. I have had it stay under water for years. After standing in the hot sun a short time it will become glassy hard. After standing a few months it can be painted with oil or water paints.

Frank Moore.
Newaygo, Mich.

# AMERICAN BEE JOURNAL

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## THE EDITORS' VIEWPOINTS

### PROPOLIS

Mr. E. Giraud quotes to us from an article on propolis in the Bulletin of the Societe Nationale d'Horticulture de France, for January, 1922, which describes an analysis of that substance and the securing of crystals that proved to be similar to those isolated, in 1864, by Picard, from poplar buds **(Populus pyramidalis, P. nigra, P. balsamifera)** and which were described under the name of chrysenic acid. The authors of this, Messrs. Riviere and Bailhache, suggest that propolis may not be secured in every country from poplars and that, in some localities, its composition might be quite different.

This is true, but if we refer to the United States Dispensatory, we find "amber" described as a fossil resinous exudation from coniferous trees, and this other substance, "chrysen," as a similar substance. So it is probable that all conifers, as well as poplars, produce exudations which the bees may use as propolis, and that these substances are very much alike is not to be doubted. It would be interesting, however, to learn upon how many different kinds of trees bees are found to gather what is commonly called "propolis."

### ARE BLACK BEES DOMINANT

In the May number, page 214, our good friend LeStourgeon takes the practical apiarists to task for destroying drone comb too carefully in our apiaries, holding that the neighbors' black drones easily get the upper hand, by our fault.

It is true that the common or black bees were established here first, and that stray swarms, in the woods, in the clefts of rocks, in chimney flues, house walls, etc., and in the hands of the backwoods man, are likely to be of the common race. We found out, as early as the sixties, that if we desired pure matings we must take some energetic methods of Italianizing the bees of the country. Such men as John M. Davis, of Tennessee, for whom the purity of the bees is of great importance, since they keep them for sale, have long been in the habit of offering money to anyone who would indicate a stray swarm, so they might take possession of it, and change its breed.

My father, Charles Dadant, not only decided at once that we must destroy the common bees in the woods or take possession of them; he also decided that we must induce our neighbors to Italianize their bees. That was a task; but it did not require as much effort as we had anticipated. All the neighbors soon found out about the Italians, their color, their greater activity and value. So when we extended to them the offer of Italianizing their bees for a dollar per colony, at a time when Italian queens were selling at $5 to $10, we had little difficulty in interesting them, especially if we took the pay in trade, and did all the work ourselves. Here is what we did:

Getting a number of queen cells ready, from our best stocks, we went to the neighbors, one after another, and got their agreement to pay $1 per colony, for all their colonies that we succeeded in Italianizing; however, without guarantee of pure mating of the young queens. Then, on the ninth day from the preparation of queen cells, we would destroy as many black queens as we could replace with queen cells. On the following day, the tenth day, each colony thus made queenless would receive a queen cell of pure stock. We did not care whether the colonies were in box hives, or gums, or in immovable frames (which was often the case at that early day of absence of foundation); we drove the bees out, by drumming, found the queen, killed her, and put the bees back. On the tenth day, they were ready and willing to accept a queen cell.

Perhaps the reader will think that, after such management, there must not be any black bees in this vicinity. There are not very many; but they still exist. If we wish to continue to succeed, we need to continue our efforts. Of late years we have been too busy to follow this method. But we urge it upon those of our friends who wish to rear pure stock. It is better to let the neighbors raise the drones than to raise them yourself. Besides, you are doing good to others while helping your own interests.

I want to say that I got more actual practice in driving bees, hunting queens, and inserting queen cells, in this way, when I was between 18 and 22 years old, than I ever experienced since. Try it, if you wish to raise pure bees, and let your young bee lovers practice it. If your neighbors don't accept to pay in cash for such work, not one of them will refuse to pay in honey, eggs, or butter. Although it was some fifty years ago, I can still hear the voice of an old "hardshell" farmer who hesitated a long time before agreeing to have his bees Italianized, and finally assented with the words: "Sock 'em in."

Italianizing in this way must not be done during the swarming season, for in nine cases out of ten the bees thus made queenless would raise queen cells of their own brood and swarm with the young Italian queen, shortly after she was hatched, and one would fail in the purpose intended of Italianizing the colony.

### DISEASE PREVENTION AND CURE

A man of philosophical mind says: "Do not trouble trouble till trouble troubles you." That is a very good motto, but there is another which I like better yet: "A stitch in time saves nine."

This latter motto is a good one to keep in mind, if there is any possibility of disease existing among your bees. Some twenty years ago, I had heard of foulbrood, but had never seen any. Later I got very fully acquainted with it, and I want to warn all our friends against it, for it is here that a stitch in time saves nine.

June, in most of the Middle States of the Union, is the very best time to discover foulbrood and to treat it. If there is any possibility of disease, it should be found at its inception, when it is not difficult to cure. The beginning of the honey season, before we put on the supers, is the ideal time of the year to examine all the bees and treat the diseased stocks.

European foulbrood is easily cured, usually, by removing the queen or caging her for ten to twenty days. But for American foulbrood there is no safe method but that of changing all the combs. Cheshire wrote that foulbrood was not transmitted in honey. He was a scientist, but lacked the experience, for we now know positively that Schirach, D. A. Jones, McEvoy and others were right when they said that it was transmitted **mainly** by honey. The present number contains an article on the subject of foulbrood by Mr. Cale, which every man who has any doubts about recognizing foulbrood had better read over carefully until he gets the symptoms well defined in his mind. But there are three things which are always found in American foulbrood, that we should remember: the ropy consistency of the dead brood, the glue-pot smell and the brown coffee color.

There is one feature of sacbrood which makes it easy to recognize, the sac-like appearance of the dead larva, which can usually be lifted out of the cell like a sac full of dead matter. When dry, it may be shaken out. Not so with either of the two malignant brood diseases.

If you find foulbrood in your hives, do not get discouraged. There has been more honey harvested, as a rule, in apiaries that have been cured of foulbrood, than ever before. Our banner year, 1916, during which we harvested an average of some 235 pounds of honey per colony, came several years after we had discovered and treated foulbrood. But remember the motto at the beginning of this editorial: "A stitch in time saves nine."

### TARSONEMUS NOT ACARAPIS

Mr. John Rennie is the scientist who helped bring to light the famous mite which is credited with the unenviable reputation of causing Isle of Wight disease. Mr. John Rennie states that it is a mistake to create a new rame for a genus which does not differ sufficiently from the already known Tarsonemus to entitle it to such a distinction. We rather liked the name "Acarapis," because it explained itself. But we should not help cause confusion by too many names, so we will in future call the mite "Tarsonemus," as before. See American Bee Journal for May, page 203.

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### VENTILATION

Do not fail to bear in mind that a great part of the inconvenience which bees suffer during the hot days of summer is due to the inadequate facilities which they have to keep the air pure and the temperature within safe limits inside of the hive. When a colony of bees clusters out during the day time, in a season when there is honey in the fields, it is most evident that they are not only uncomfortable, but that they are also losing opportunities to add to their stores. The honey crop lasts but a few days, a few weeks at most, and it is sheer folly for their keeper to overlook their needs. They must have shade, ample room for ventilation and ample room for stores. That, in many cases, their supers are uninhabitable, was proved to me long ago, when we used to place boxes of a diameter of about 6 inches, with a one-inch hole at the bottom for ingress and egress, right over what we called a "honey-board," a board laid over the top of the combs, with holes in it corresponding with the holes in the glass boxes. It took us several seasons to recognize that the reason why bees would not go into those glass boxes was that it was impossible for them to force air into them so as to be able to keep alive in them. The fact that bees did not fill them, in fairly cool summers, in spite of the exiguity of the means of ventilation, helped to entertain the mistaken idea that the boxes were properly arranged. But when, season after season, we found our half story frame supers filled rapidly. because the connection between them and the hive was full and the bees were able to force a current of air through them with but little effort, we came to the conclusion, at last, that those confining glass boxes were worse than a nuisance.

Never let the bees hang out idly during the day time in a good season. Give more and more room beneath the hive body until the bees are busy. Make sure that there is ample comb room, not only for today's crop but for several days ahead. When we furnish our bees already built combs or comb foundation, we relieve them from the necessity of hanging in clusters to produce wax, which they have to do when they come home and find all cells full. Some bee students claim that wax producing is a necessity. It is, when the bees have their stomachs loaded, but when they are able to empty their honey sack as soon as they arrive home, there is but little wax produced, and that serves in lengthening the cells. The economy is great and the production of honey often trebled.

It is not only the novice who overlooks the arrangement of comfortable conditions for the bees during the harvest, many do so who know better, unless they are reminded of it. Don't forget it.

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### WHY IS AMERICAN HONEY INFERIOR TO SWISS HONEY?

That question is asked, and answered as follows, in the magazine "L'Ape," official organ of the Tessin (Italian-Switzerland) Society of Apiculture, February number, page 31:

"The answer is easy; that comes from the American climate which, developing the flora in an extraordinary, quasi-gigantic fashion, it follows that, owing to the accelerated growth, the divers humors of the plants remain weak and without strength.

'With us, the plants develop more slowly and the humors have time to gather the necessary vigor and consistence. Thus the honies gathered upon our plants are more perfumed and insuperable, regarding their nourishing and medicinal properties."

You didn't know that, did you? What do you think of it? The worst of it is that there is considerable truth in the assertion that plants which grow in a moderate climate have more fragrance than those of a hot climate. But the man who wrote the above evidently does not know that we have, in America, some summer climates as mild as that of Switzerland. It is probable also that the American honey which he had occasion to taste was not of the best grade. Much of the export goods are inferior goods, though in some lines the best is often exported. But it teaches a lesson to every one. Let us not throw stones in our neighbor's garden.

"O, wad some power the giftie gie us
To see oursel's as ithers see us!
It wad from many a blunder free us." . . . .

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### SOY BEANS FOR BEES

Just now the farm papers are giving a great deal of attention to the value of soy beans as a forage crop. We are much interested in learning of their possible value as a source of honey. We have seen occasional mention of the fact that bees work on the blossoms, but so far have not been able to secure much information about the value for honey. If any of our readers can supply us with details of the amount of surplus secured from soy beans, the quality and color of the honey and other items of interest concerning the crop, we will be very glad.

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### FOULBROOD NOT FOULBROOD

Those who are experienced do not make any mistakes as to what is and what is not foulbrood. But many, even among fairly experienced apiarists, get frightened at the appearance of bareheaded chrysalis or pupæ when they happen to have been left unsealed by the workers. During the metamorphosis, the larva which is changing into the winged insect shows a change of color, the eyes especially first assuming a bluish color. There is nothing unnatural about this, the only extraordinary feature being the fact that the bees sometimes leave entire patches of brood thus unsealed while it is undergoing the transformations. Whether it is because they are short of wax, or too busy, or whether, as some assert, there is not room enough between those combs to permit the sealing of the cell, the fact remains that this happens here and there, and some easily frightened beekeepers imagine that they are facing a case of disease. Now, disease shows usually in very irregular spots and no one has ever seen an entire patch of brood, uniformly dead, unless it has been killed by starvation or chilled. Every beekeeper ought to become informed as to the appearance of true foulbrood, so that he may stop it at its inception whenever it comes. Spring is the best time to make sure of the health of our colonies, for it is at the opening of the crop that they may be most safely treated.

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### ASSOCIATION PUBLICITY

Several beekeeping organizations now have regular publications by means of which the members are kept in touch with the news of general interest. The most prosperous of these organs is the "Western Honeybee," published by the California State Beekeeprs' Association. Wisconsin beekeepers have a department in the monthly publication known as "Wisconsin Horticulture," and the New Jersey beekeepers have recently started a four-page monthly in charge of Secrtary Carr. Illinois, Iowa, Montana and some others have a monthly news letter which is mimeographed and sent out to the members. By this means the members are kept in close touch with the activities of the organization and matters of local interest are presented which the bee magazines could not find room to print. There is probably no better means of stimulating interest and increasing the membership than some form of regular news letter.

# TIME AND LABOR FACTORS INVOLVED IN GATHERING POLLEN AND NECTAR

By Wallace Park,
Assistant Chief in Apiculture, Iowa Experiment station.

THE results of the field labor of a colony of bees for a day is readily determined by the use of ordinary platform scales. Most of us know approximately the average and maximum gains made by a colony of given strength under given conditions. But the gain registered by the scales is made up of thousands of small gains or loads. The determination of the weight of pollen and nectar loads and the number carried by a bee in a day is a fascinating task. Some of the information secured on these subjects during the past two years at the Iowa Experiment Station appears in the following paragraphs:

### Time Factors

Individual bees were marked and records kept of the time of departure and return of each marked bee. Observations began early each morning and continued without interruption until the bees ceased flying at night. During most of the time there were two observers, so that the chances for a marked bee to pass unnoticed were reduced to a minimum. Only full strength colonies were used in securing data.

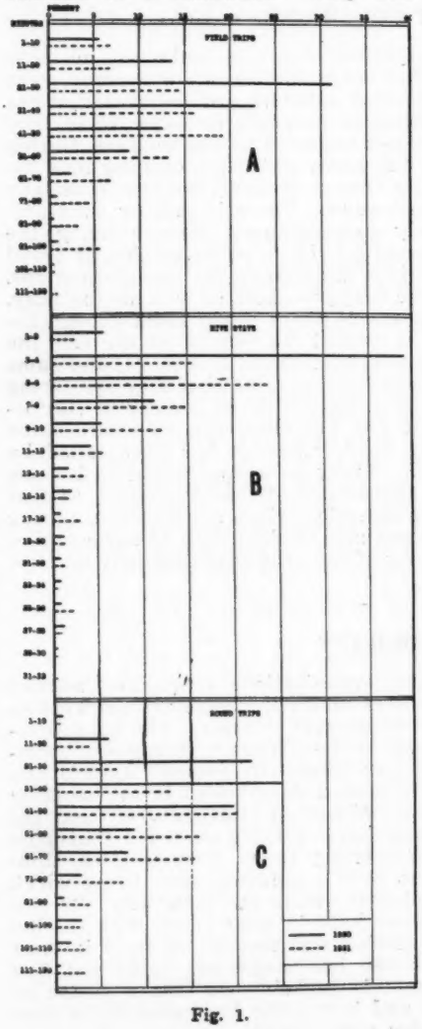



Fig. 1.

### Nectar Gathering

Since honeyflow and weather conditions have such a direct influence upon the gathering of nectar, the time records secured under any given set of conditions are not likely to be duplicated except under similar conditions. During the period of observation in 1920, average colonies stored about five pounds per day from white sweet clover **(Melilotus alba)**, while in 1921, average colonies gained only a little over 1 pound per day from the same source. Weather conditions were highly favorable for honey production in the former instance but were only fair in the latter. Summarizing, it may be said that one set of data was secured under very favorable conditions, whereas, the other was obtained under conditions which were from mediocre to poor. The data for field trips, hive stays and round trips are shown in Fig. 1, A, B and C. Records obtained under **favorable** and **unfavorable** conditions are compared.

Of the records obtained for field trips made by nectar carriers in 1920, 31 per cent fell within the 21-30 minute class, as shown in Fig. 1, A. About 68 per cent fell between 10 and 40 minutes, and 95 per cent occupied less than 1 hour. The mean time was about 34 minutes but the modal or most frequent interval spent in the field was 26.8 minutes.

Modal values have been determined by use of W. I. King's formula given in his "Elements of Statistical Methods," p. 124.

In 1921, only 19 per cent of the field trip records fell within the 41-50 minute class which contained the greatest number for any one class. About 48 per cent fell between 30 and 60 minutes, and 76 per cent were completed within 1 hour. The mean time for field trips was 49 minutes but the modal interval was 45 minutes.

As shown in Fig 1, B, the 3 and 4 minute records of hive stays by nectar carriers comprised nearly 40 per cent of the total number recorded in 1920. Over 75 per cent were completed within 10 minutes. The average time for all hive stays was 11.6 minutes but the figure is not very significant, owing to the influence of a few exceptionally long records. The modal or most frequent interval spent in the hive between field trips was 3.9 minutes.

In 1921, the records of hive stays were more widely scattered than in the preceding year. The greatest number fell within the 5-6 minute period which included only about 23 per cent of the records; but nearly 68 per cent were completed in 10 minutes or less. The mean time was about 16 minutes while the modal interval was 5.5 minutes.

Nearly 25 per cent of the round trips recorded for 1920 fell within the 31-40 minute period as shown in Fig. 1, C. Just 66 per cent occupied between 20 and 50 minutes each, and 90 per cent were completed in less than 1¼ hours. The mean time was 45 minutes, whereas the modal or most frequent time was only 35 minutes.

In 1921, about 21 per cent of the recorded round trips belonged in the 41-50 minute class. Scarcely 50 per cent fell between 20 and 50 minutes and only 80 per cent were completed in less than 1¼ hours. The mean time was 63 minutes but the modal time was 46 minutes.

The maximum number of trips recorded in one day for a nectar carrier was 24 in 1920 and 17 in 1921. The average number of trips per day was found to be 13½ in 1920, while in 1921 the average was only 7 per day. If the mean time for round trips for each year be multiplied by the average number of trips per day for the same year, we arrive at an approximation to the average time per day spent in nectar gathering. This gives about 8½ hours for field work in 1920 and about 7½ hours for 1921.

### Pollen Gathering.

Time records for field trips, hive stays and round trips by bees gathering pollen from corn were recorded in 1920 and again in 1921. The weather conditions in both instances were favorable enough for the production of pollen by the plant and for field work on the part of the bees. But in

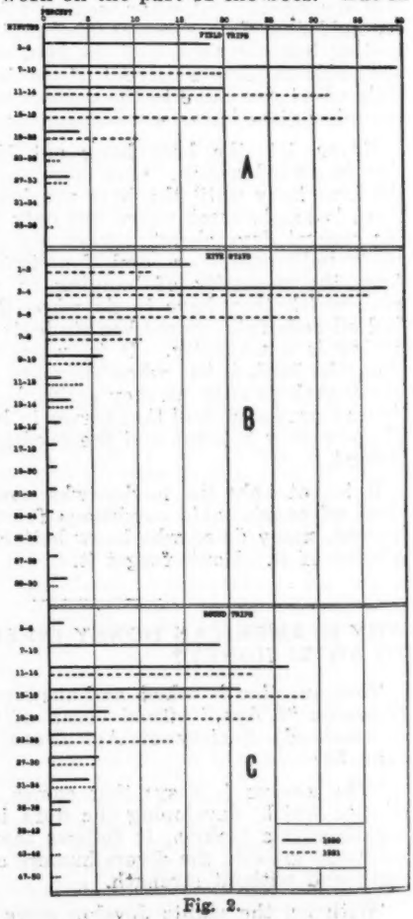



Fig. 2.

1920, the data was taken at times when there was an abundance of corn in bloom, whereas, in 1921, the main period of bloom had passed before the records were obtained. We have, then, as for nectar carriers, one set of data secured under **favorable** conditions, and the other under **less favorable** conditions. The records for the two seasons have been plotted against each other and appear in Fig. 2, A, B and C. In nearly every case there are a few exceptionally long records, so for purposes of comparison, the **mode** is used in preference to the **mean.**

Field trips by pollen bearers were found to be considerably shorter as a rule than those made by nectar carriers. As shown in Fig. 2, A, almost 40 per cent of the field trip records for 1920 fell within the 7-10 minute class, and 97.5 per cent were completed in 30 minutes or less. None of the 1921 records for field trips fell within the 3-6 minute class, and only 20 per cent fell within the 7-10 minute class, yet 99 per cent were accomplished in 30 minutes or less. The modal time, however, was 15.5 minutes as against only 8.6 minutes in 1920.

The graphs for hive stays appear in Fig. 2, B, and are very similar for the two seasons. The peaks both fell within the 3-4 minute class. In 1920, this class received 38 per cent of the records as against 36 per cent in 1921, but the percentage of hive stays that occupied 15 minutes or less was 98 in 1921 as against 88 in 1920. The most frequent interval spent in the hive between trips was 3.4 minutes in 1920 and 3.7 minutes in 1921.

As shown in Fig. 2, C, the class having the greatest number of round trip records in 1920 was the 11-14 minute class, while in 1921 the 15-18 minute class claimed more records than did any other. It will be noticed that in 1921 no round trips were completed in less than 10 minutes, whereas in 1920, one-fifth of all the round trips recorded were completed in less than 10 minutes. Nearly three-fourths of the 1920 records fell within the period from 7 to 18 minutes, inclusive, while in 1921, a similar fraction fell within the period 11 to 22 minutes, inclusive. This indicates in a general way that the bees that gathered corn pollen during the period of observation in 1921 consumed about 4 minutes per trip more than did those in 1920 when corn pollen was more plentiful.

The maximum number of trips recorded in one day for a bee gathering pollen from corn was 20 in 1920 but only 11 in 1921, while the averages were about 8 and 5½, respectively. As a rule, corn pollen was not available in the afternoon so these figures represented only about half a day in actual working time.

**Labor Factors.**

Before the nectar carrying capacity of the honeybee could be found, it was necessary to determine the minimum flying weight. This determination was made by three different methods, all of which gave approximately 82 mg. as the average minimum flying weight for Italian bees. The load carrier was determined by deducting this factor from the gross weight of the loaded bee. The maximum nectar carrying capacity was found to be approximately 70 mg. or about 85 per cent of the weight of the bee itself. Average loads were found to weigh 40 mg. or about 50 per cent of the weight of the bee.

Wallace Park and his observation hive.

A nectar carrier making 13 trips, the daily average found in 1920, and carrying average loads of 40 milligrams would bring in approximately one nine-hundredth part of a pound of nectar in a day; while one making 7 trips, the daily average found in 1921, and carrying 40 milligram loads would bring in only half as much in the same length of time. The nectar carrier that made 24 trips one day in 1920 must have brought in about one five-hundredth part of a pound that day, assuming it carried ordinary loads.

The weight of pollen loads carried by bees apparently differs according to the source, ranging from 12 and 14 mg. for elm and corn, respectively, up to 25 mg. for apple and 29 mg. for hard maple. Thus a maximum load of pollen was found to be about one-third of the weight of the bee and less than half that of a maximum load of nectar. It appears that there must be a great difference in the specific gravity of various pollens, for the loads carried from corn appeared fully as large as those from apple or hard maple, but they weighed only half as much.

A pollen bearer making 8 trips, the forenoon average for 1920, and carrying 14 milligrams of corn pollen at each load would add about one four-thousandth of a pound to the food supplies of the colony; while one making 5 trips, the forenoon average for 1921, and carrying ordinary loads would bring in about one six-thousandth of a pound.

# PAPER SHIPPING CASES FOR COMB HONEY

By J. E. Crane

HAVING had many inquiries in regard to paper shipping cases I thought a short article along this line might be of interest to the many readers of the American Bee Journal.

Between fifteen and twenty years ago I saw some boxes made of corrugated paper board and I began to wonder if such material could not be used for comb honey, but doubted very much if it would make a case strong enough for this purpose. The resiliency or elasticity of the material seemed very desirable for prevention of the breakage of combs, if a case sufficiently strong could be made. I had lost many hundreds of dollars from the breaking of combs during the thirty or forty years I had been shipping comb honey to market. There is, perhaps, no one thing more disgusting to a grocer than to get a lot of broken honey. Not only is the honey ruined but it is apt to run out of the cases and make a mess of everything about it. American methods of handling freight and express matter could most certainly be improved. During 1919 the railroads of the United States were called on to pay $105,000,000 for damage to freight in transit.

Comb honey is very fragile, especially in cold weather. If a case could be made that was safer than the wooden cases I had been using, it would seem to be a most desirable improvement. I gave the subject considerable thought until I became so much interested that I visited a firm that manufactured this board and talked the matter over with them and was induced to try a few hundred such cases.

I thought if they proved too fragile to ship honey for a long distance I could use them for filling orders near home. My fears, however, were unnecessary for I soon received letters from grocers begging me to use these paper cases as the honey in them was received in far better condition than when shipped in wooden cases. During the past fifteen years I suppose we have shipped somewhere between one and two hundred tons of comb honey in these cases and do not remember of a single word of complaint for using them nor have we been asked to ship in wooden cases.

While these cases are not as handsome or do not look quite as nice perhaps as wooden cases there are

some advantages in using them. We can set them up, I believe, in less than half the time it takes to nail up the wooden cases. They are less expensive, and last but not least they carry honey more safely.

If made right they are very strong and stand up well when piled one on top of another, eight or ten high.

We formerly shipped them without extra packing but during the recent war and since, freight and express matter has been handled so carelessly that we are now shipping largely in crates, six or less to a crate, with straw or excelsior in the bottom. Indeed, at the present time some railroads will take comb honey in no other way.

In making these cases the partitions should come at least ⅜ inch above the sections that any weight on top of the cases may be supported by the partitions rather than rest on the sections. It also makes a stronger case if the corrugations run up and down the partitions rather than lengthwise. These partitions, in addition to strengthening the case, help to break any jar from the side or end of the case, each partition acting as a cushion.

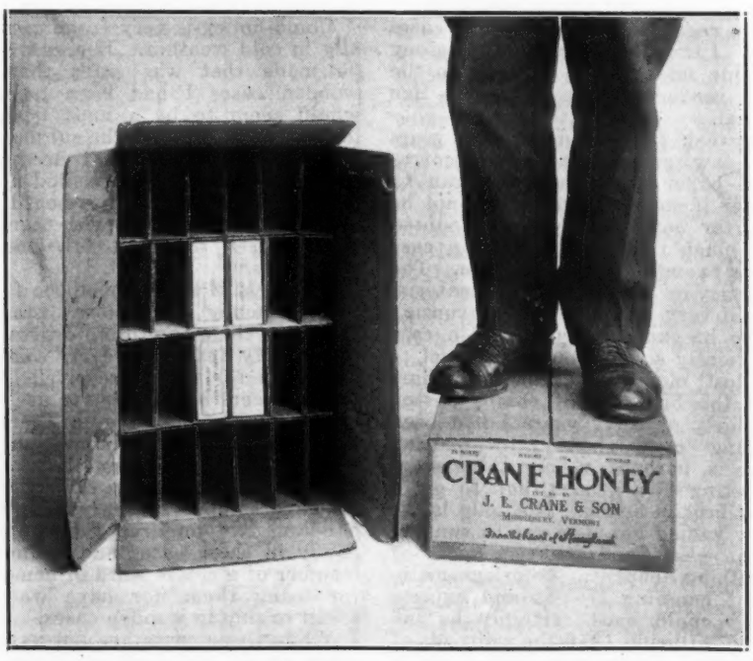
A corrugated mat on the bottom receives any drip that may come from the sections.

I could fill a large amount of space with testimonials in favor of these paper cases but will offer only two recently received. The first from Cobb, Bates & Xerxes, of Boston, who have handled large amounts of our honey. They say: "We prefer the corrugated cases, as we think the honey is less apt to break down in them than in wooden boxes."

A. W. Gates of Hartford, Conn., one of the leading beekeepers of that state says in a recent letter: "I believe the corrugated case for comb honey is the coming case. Honey that I have received from you and others shipped in these cases has come through just as safely and, I think, perhaps a little more so, than that received in wooden cases. Wooden cases are naturally very frail and do not stand very rough handling. Also the difference in price between the two should be a good word in its favor."

In the picture shown is a man standing on an empty case showing the strength of the case.

The other shows how the case is constructed. The partitions add to the strength of the case and also help to break any jar or blow the case may meet with.




The Crane paper shipping case. The man standing on the case shows that it is not easily damaged.

## CULTIVATION OF SAGE AND THYME

From British Journal of Ministry of Agriculture.

Sage **(Salvia officinalis)** has long been under cultivation in market, private and cottage gardens. The plant is a native of Southern Europe. The leaves have been used for flavorings and stuffings for centuries, and at one time an infusion was made from the leaves, known as sage tea, which was said to have certain medicinal properties. There is always a certain demand for the crop on large markets, but this demand fluctuates greatly and can be easily overdone. It is therefore not by any means a safe crop to cultivate on a large scale, and the same may be said of thyme. At one time very considerable quantities of sage were grown in the Mitcham district of Surrey, and the Evesham market gardeners made a special line of the crop, but the time came when the supply very much exceeded the demand and growers consequently gave up its culture. Leading market gardeners in Middlesex still grow small quantities, according to the demand.

The plant succeeds best on light, warm and dry soils and can be raised from seed sown in frames or on a warm spot in spring. The plants when well established and hardened off can be lifted carefully with good balls of soil and placed in permanent position 1 foot apart and 18-24 inches between the rows.

By far the most common method of propagation, however, is by slips and cuttings, or by pieces of the young growth well ripened and broken off with a slight "heel." These slips are inserted in a shady border or cold frame in April, May or June, and occasionally watered until rooted, when they can be planted in the open and at the distances already mentioned. There has been a great tendency in recent years to plant wider, so as to admit more easily of horse labor. Three feet between the rows and 2 feet between the plants has been a common distance. The ground is kept in good tilth and clear of weeds, and the extremities of the leading shoots are pinched to produce bushy plants by the encouragement of lateral growth.

For winter use it is bunched and dried in a dark, cool, airy shed and then tied into bunches, or they may be tied in bunches immediately after cutting and suspended from the roof of a cool shed to dry.

### Thyme

There are two varieties of this herb, the large green-leaved **(Thymus vulgaris)** and the shorter variety known as Lemon thyme **(Thymus citriodorus)**. The former is most extensively used as a flavoring for soups and stuffing. It thrives best on a light, warm soil.

The plants are usually raised from seed sown in April in shallow drills 8 to 12 inches apart. They should be thinned out in June and July to 4 inches apart and the thinnings used for planting up fresh ground at the same distances apart in the rows and between the plants as already indicated. This herb may be also bunched and dried for winter use. Cuttings can also be taken, but seedlings are the usual method of propagation.

When only a small quantity is required, a single drill may be sown at the margin of a border and left unthinned, when it will form a good edging.

At the present time there is a rather good demand for English herbs, and English sage has been commanding a price of about 150s per cwt., as compared with 30s per cwt. for Dalmation, French and Greek produce. English thyme has been commanding about 178s per cwt., as against 50s per cwt. for the imported article. It is generally recognized that the English article is very much superior to the imported. The annual home consumption has been computed at about 200 tons of sage and 50 tons of thyme. It will therefore be apparent that although at present the demand is good, the area necessary to produce it does not amount to a very large acreage, even taking the low estimate of 1 ton per acre.

# BEEKEEPING IN JUGO-SLAVIA

By Alexander Toman

AS the geographical, political and economical conditions of Jugoslavia (pronounced Yougoslavia, the land of the southern Slavs), the new state in the southeastern part of Europe, may not be known to a large majority of the readers of the American Bee Journal, it will be appropriate to give them some information.

Among the States of Middle-Europe the Great War worked like a cataclysm, destroying states existing many hundreds of years and crippling others, notwithstanding they were armed to the teeth. The Empires of Austro-Hungary and Germany were destined to experience all the woes that befall the defeated, and were the ones that suffered the most.

The Empire of Austro-Hungary, founded by the Hapsburgs in the thirteenth century, has retained only a small part of its greatness in the now precariously existing Republics. Austria and Hungary, which are ruled by two separate governments.

Serbia has allied itself with the southern provinces of Austria, Slovenia, Croatia, Montenegro, Slavonia, and a part of Macedonia, with a long sea-shore on the Adriatic. Carniola is also a part of this new State. Belgrade is the capital.

The Jugoslav is a born beekeeper and beekeeping is nowhere so closely related to the soul of the people as with the Jugoslavs. In some parts of Jugoslavia beekeeping was so extensive and the production of honey and wax so abundant that these products were exported in great quantities.

**Southern Jugoslavia** could compete with the best honey producing districts of the United States, and 150 pounds of honey per colony is no extraordinary crop. Linden, acacia, salvia officinalis and blossoms of meadows and pastures are the best producing plants.

The Serbian peasants use straw beehives of a bell-like shape. The Serbian Agricultural Association is trying, by instruction and demonstration, to induce them to accept modern beekeeping methods and with them large hives with movable frames.

Kara George, 1764-1812. Farmer an beekeeper, founder of the Serbian dynasty. (After an old oil painting).

The Serbians do not use house apiaries such as are in vogue in other parts of Europe where the hives are tiered above each other in several rows. They keep them in open fields in the same manner as is done in the U. S. In winter they leave the hives in the open; in more rigorous districts they move them together and cover them with straw and boards or pine branches.

The young and more progressive beekeepers have adopted American hives and there are already now in Serbia large apiaries conducted after American methods. The bees kept in Serbia are of the Banat strain, a variety of the Carniolan bee.

Here may be mentioned that Black George, or as the Turks called him, Kara-Djardje, (1764-1812), the founder of the present Jugoslavish Royal Dynasty, Karadiordjevich, was a Serbian small farmer and beekeeper. His intense patriotic feeling, his talent in matters military and civic, his undaunted valor and persistent unfailing trust in the power and will of his countrymen to throw off the yoke of the Turks, laid the foundation to a free and independent Serbia and in a wider sense of Jugoslavia. When in the change of the luck of war events he was obliged to flee from his country and seek refuge in Hungary, he made his living by tending bees for other people.

Kara-Djardje can with full right be called the George Washington of Jugoslavia. At the time when the Colonies of New England rose under Washington's leadership against England, he organized and spread the revolutionary movement among the Serbians against the Osmans. It would be interesting to know whether the American Revolution and the Declaration of Independence had any influence on the events taking place at that time in Serbia. This may have been, as the Serbians were imbued with the same democratic spirit as shown in the Declaration of Independence and which later has found expression in the Constitution of Serbia.

**The Middle of Jugoslavia** consists of the great plains of Croatia and Slavonia, of Bosnia and Herzegovina, the first (Bosnia) rich in forests and of Dalmatia, which has the characteristics of Herzegovina and which borders on the Adriatic Sea.

In middle Jugoslavia, hives with movable frames are very much in use, constructed after German patterns. Here, too, the Banat bee is prevalent, except in the northwestern part where the Pure Carniolan bee is kept; on the coast this race is mixed with the Italian bee.

The northwestern district of Jugoslavia forms the Alpine province of Slovenia, where the home of the Carniolan bee **(Apis mellifica carnica)** is situated and where the Slovenes live.

In this northern part of Jugoslavia, beekeeping is most developed, in spite of the cold climate with its damp atmospheric conditions and adverse economic situation.

From the time when the Slovenes first appear in history beekeeping was one of their favorite occupations. There are in old archives registers with the names of farmers paying taxes in honey and the weight each had to deliver. From these historical documents can be seen how carefully and with what love the Slovenes have tended the bees. Therefore it is no wonder that this nationality from times immemorial were known as exporters in beekeeping.

Costume of a woman of Slovenia.

Anton Yansha, a plain Slovenish farmer, who died in 1773, was called by the Empress Maria Theresa, to Vienna, as instructor in beekeeping. He was the first who explained the nature and significance of the drones, how the queens are fecundated, that with the first swarm the old queen leaves the hive, etc. He was the first to introduce rational and systematic beekeeping.

Typical of the beekeeping of the Slovenes are the Original Carniolan hive and the bee house or pavilion. The hive is made of thin boards, measuring 28x12x6½ inches. In the beehouse the hives are mounted in rows one over the other, sometimes to the number of 100 and even more.

The hard winters in Alpine districts are the cause why bees are kept there in pavilions—about this there cannot be any doubt.

The first flow of nectar in Slovenia in spring is on the Erica cinerea, on flowers of the field, then on chestnut **(Castanea dentata)**, later on buckwheat **(Polygonum fagopyrum)**. Lin-

den and acacia (black locust) do not occur here in great numbers.

In some districts there are extensive woods of pine and Abies alba, giving in hot summers an abundant crop of exudated honeydew and in some years yielding 150 pounds of this honey per colony. Such warm summers appear only about every third year.

The Slovenish beekeepers, in districts where buckwheat is not cultivated, have the habit of transporting their bees to places where this cereal is grown. In recent years these beepastures are becoming less and less constant and reliable because this grain is less cultivated every year and because there was introduced a new kind, the gray buckwheat, whose blossoms do not yield as much nectar as did the black kind.

# ISLE OF WIGHT DISEASE AND THE REGULATIONS AGAINST ITS IMPORTATION IN THE UNITED STATES

### A Review of the History of the Disease

EIGHTEEN years ago, on the Island of Wight, there appeared a disease of the honeybee hitherto unknown to beebeepers. The diseased colonies had much the appearance described in this country of colonies affected by paralysis. The bees are listless, with wings dislocated, abdomens distended, and thick, putty-like feces are discharged about the hives and around the entrances. The bees seem unable to fly, and crawl about by thousands, ascending upright objects, and often collecting in small clusters.

A good history of the spread of this disease and of the studies into its causes is given in the Journal of the Ministry of Agriculture, London, April 1921. During the first two years the disease spread slowly, but in 1907 practically the whole island had become infected and beekeeping was ruined. The investigation of Imms, at Cambridge University, led him to conclude that the trouble was a digestive one, a conclusion borne out at that time by other investigators. However, Zander, in 1909, discovered and described a parasite organism which he called Nosema apis. He attributed the disease to this organism and his conclusions were supported by the work of Drs. Fanthorn and Porter in England.

Recent investigations by Dr. Rennie and Prof. Anderson, of the University of Aberdeen and the Aberdeen College of Agriculture, assisted by Miss Elsie J. Harvey and P. Bruce White, have led to the discovery of a new parasite which seems to be the real cause of Isle of Wight. It is a mite, supposedly of the genus Tarsonemus, but now placed in a new genus, Acarapis, by Hirst. It is named specifically **Acarapis woodi,** in honor of A. H. E. Wood, who financed the investigations. The new mite is closely related to the Tarsonemes, several species of which are destructive to plants. A few species have been found in malignant growths in man and animals.

The mite i apparently bred within the bee but confined to the breathing tubes of the thorax, into which it enters by means of the external holes or spiracles. Breeding takes place here until, eventually, the spiracles become partially or wholly obstructed. In the latter case, the bees die at once, while in the former, being unable to fill the air sacs which permit of flight, the bees are reduced to crawling.

Then, of course, the abdomens become congested, with the consequent staining of the hives.

Thousands of colonies throughout the island, reported diseased by reliable beekeepers or found to be diseased by the investigators themselves, harbored this mite, although Nosema apis was not always present. Similarly, every individual bee known to be diseased contained the mites when examined. It is interesting to learn also that experiments in blocking up the spiracles with wax, a condition similar to that caused by the mites, resulted in the appearance of all the symptoms of the disease.

It has since been found that young bees are not readily affected and that stocks have apparently been cured and have made a surplus by making artificial swarms from the infected colonies, leaving only the young and hatching bees to carry on the work. The British Journal of the Ministry of Agriculture is also responsible for the statement that Italian bees are resistant to the mite, since imported queens from the north of Italy, introduced into affected colonies in an advanced stage of the disease, gradually overcame the trouble. This treatment has been tried repeatedly, and it is stated that in each case, the results were wholly satisfactory.

In a recent letter Professor Anderson says: "The regions first attacked in the south of England are now nearly clear of the trouble. I do not think you need worry about the coming of the mite so long as good methods of beekeeping are practiced."

It is interesting to note, also, that recently Dr. Morgenthaler has found the same mite, which he had identified by Dr. Rennie, in healthy colonies of bees over quite a range of territory in Switzerland.

It is evident, therefore, that we do not yet know all the causes contributing to the disease, and it remains for other investigators to confirm the results arrived at by Dr. Rennie and his associates before the discovery can be entirely accepted.

During the period when Isle of Wight disease was believed to be caused by Nosema apis, investigations were made in this country to determine the presence of the parasite. It was found to be generally distributed both in healthy colonies and in colonies which showed paralytic symptoms. For this reason discredit was thrown on the previous work of the British investigators and it was not thought necessary to guard against the introduction of the disease. However, since the discovery by Dr. Rennie, new interest has been taken in the matter and samples of paralytic bees have been secured by the Bureau of Entomology at Washington from a wide territory in this country. These samples were carefully examined, but there was no indication of the new mite in them.

In order to determine the ease with which the mites might be brought into this country, two samples of bees in queen mailing cages were secured from Scotland. One arrived with the mite fully alive and easily recognizable in the adult bees. The queenbee was apparently not infected. This has again renewed the fears of introduction on the part of those interested in disease control, since the mite, which now sems to be the cause of disease, may easily be brought into this country in shipments of queenbees or of bees, either in the mails or in express.

On March 9th, therefore, a conference was called at the Bureau of Entomology to consider what steps should be taken to avoid the introduction of the new parasite. There were 14 in attendance, 12 of whom were apiary inspectors, or Department officials. It was the opinion of this conference that a regulation should be at once enforced prohibiting the further importations of bees from any country except Canada. Exception is made in the case of the Bureau of Entomology which, under regulations of the Secretary of Agriculture and Secretary of the Treasury, may import bees for scientific and investigational purposes. A committee was appointed which drew up a bill which has been introduced into the House of Representatives. Following is an exact copy of the proposed law:

**A Bill to Regulate Foreign Commerce in the Importation into the United States of the Adult Honeybee (Apis mellifica).**

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, That, in order to prevent the introduction and spread of diseases dangerous to the adult honeybee, the importation into the United States of the honeybee **(Apis mellifica)** in its adult stage is hereby prohibited, and all adult honeybees offered for import into the United States shall be destroyed if not immediately exported; Provided, That such adult honeybees may be imported into the United States for experimental or scientific purposes by the United States Department of Agriculture; and, provided further, That such adult honeybees may be imported into the United States from countries where no diseases dangerous to adult honeybees exist, under

rules and regulation prescribed by the Secretary of the Treasury and the Secretary of Agriculture.

Sec. 2. That any person who shall violate any of the provisions of this Act shall be deemed guilty of a misdemeanor and shall, upon conviction thereof, be punished by a fine of not exceeding $500 or by imprisonment not exceeding one year, or both such fine and imprisonment, in the discretion of the court.

Since this matter has been proposed, we have received letters from prominent beekeepers offering objections to the form of the bill. The statement is made that regulations should only prohibit importations from those countries in which Acarine disease is known to exist. It is argued that there is n reason for a quarantine against the whole world any more than there would be reason to quarantine shipments of potatoes from Maine because a new potato disease is discovered in Mexico. Of course the argument is evident and it is possible that some change in the law should be made in this respect.

However, it is stated that the lack of evidence concerning the existence of Isle of Wight in other countries is now valueless, since the cause of the disease had not previously been known. In that case, it would seem that steps should be taken to ascertain the freedom of countries from which importations are usually made and then to allow the continuation of importations from these countries. As the bill is now interpreted, we have no assurance that those interested in importations are to be protected in this matter.

Of late there has been renewed interest in the bees of other countries and numerous plans are under way to import bees, from Italy, Carniola and the Caucasus, especially. There is also much interest in the native bees of China and following one unsuccessful attempt to introduce them last year, several were considering trying it again this season. A recent postoffice regulation, issued by request of the Department of Agriculture, has stopped all such importations and the proposed bill will effectually prevent any new importations in the future unless steps are taken to release these countries from the quarantine.

We are in no position to oppose regulations of this sort, which seem to be intended for the betterment of the beekeeping industry, but since there is some question as to the exact intention of the regulation, as it affects importations of races removed from the danger of mite infestation, we believe that some assurance should be given as to the possibility of further importations at an early date.

The statement has been made to us that we do not need other races of bees in this country, since we already have one which is suited to our purposes, and that this occasion is a good one to compel better breeding methods on the part of American beekeepers. Arguments in favor of or against other races of bees are entirely aside from the consideration of a law of this nature. Our legislation against the parasite should be made wisely, and solely for the purpose of protecting American beekeeping.—G. H. C.

## ABOUT THAT QUARANTINE

By C. W. Aeppler

The recent regulation put into effect, prohibiting the importation of queen bees through the mails, as a safeguard against the Isle of Wight disease, is a good one. There are, however, two sides to the matter.

It is well to know that our beekeeping interests are being safeguarded, to prevent this dise.se reaching our shores from any country in which the disease is known to exist. The authors are to be congratulated on their forethought insofar as these countries are concerned. .

There is, however, no need of getting into a panic. Sometimes we stampede into things hastily. Merely because tuberculosis exists among a few herds of dairy cattle in Wisconsin, does not necessarily mean that every shipper of livestock should be put out of business.

The Italian race of bees may be the best. It may be, but there has not been enough work done in this country with other races to form any conclusions one way or the other. We are merely assuming; we are guessing. None of us have tried out other races as thoroughly as the Italian race. We all have accepted the race, not because we positively know that it is the best race of bees, but because we think it is the best. Our proof is lacking.

The gray races of bees have been little tried. With the Dadant hive now coming into prominent use, and the slogan of stronger colonies uppermost in beekeeping circles, I venture to say that the gray races of bees will play a bigger role than in the past.

The countries in which the gray races are found, are in the main hemmed in by mountains over which no bee can fly. If ever the Isle of Wight disease existed there, it would have been known. Inasmuch as none exists, no good reason can be given for prohibiting the importation of bees from those countries.

If other races of bees were more common here, some competition would result. It would develop better breeding. As yet we have nc passed the abc stage in the breeding of bees. About the only outstanding work done along this line is that done by Sladen.

Give other races a chance; at least try them out as fully as the much-lauded Italians. There is no need of forming a conclusion on something untried. The amount of work done with other races in this country is significant in comparison.

Take off the regulation, except from those countries where disease is found. I can see no just reason for an Italian bee trust or monopoly. Certainly, prevent the importation of bees from all countries where the disease exists, but not from others.

## A BEEKEEPING MOTTO

"Il mio non sol ma l'altrui ben procuro" (I procure good not for myself alone but also for others) has been the motto of the Italian Association of beekeepers since 1867. I had occasion to correspond lately with the veteran of Italian beekeeping, Count Visconti di Saliceto, and he acknowledged that the above motto was of his own devising. He wrote:

"I devised this motto in 1857, for the Bee Association, which had just

been founded in Milan. It has since been adopted by the Federazione Apistica, of Ancona, which is the successor of the above named organization.

"I acknowledge that I am very proud of being the deviser of this motto, which represents the essence of modern beekeeping, while the Virgil motto: "Sic vos non vobis mellificatis apes." (Thus you, not for you, produce honey, Oh bees) exactly represents the old school of brimstoning the bees to secure their honey.

"I have set aside any modesty in this matter and I am desirous of seeing this motto retained in our original Italian language, especially since the beekeepers of many countries, and of yours especially, are very glad to propagate the Italian bee.

"I reached the end of my 84th year, on the 3rd of January, without any of the infirmities of old age, except deafness and weakness in my limbs. I read a great deal and spend my evenings in chess playing with my daughter, but I still expect to care for my bees in summer. I have at present 60 colonies and secured over a thousand pounds of surplus honey last year. Accept my best wishes.

Alfonso Visconti di Saliceto.

Count Visconti is one of the few remaining members of the house of Visconti which ruled Lombardy some eight centuries ago.

## THAT NON-ROBBING HIVE

I have just finished reading the article in the May number of the American Bee Journal on page 222 entitled "Any Hive a Non-Robbing Hive," by Amos Burhans, of Iowa.

This is almost exactly the same "contraption" that I used to get brood combs drawn from full sheets of foundation, clear down to and

touching the bottom bar, when placing the frames of foundation in the brood chamber. I had no thought of preventing robbing, however, and do not remember of giving any attention to that feature. I simply used an inner cover, with one end cleat removed. The board was not placed entirely back to the rear of the hive and the front closed above the boards and the opening at rear, and the little spaces on each side at rear were closed with strips that were just thick enough to confine the bees.

After the foundation was drawn, the board was removed and put together again, so I did not have to have additional or special hive "fixins." The bee-escape hole was closed from the underside and the cleats around the three sides held the frames up so as to allow a bee-space immediately under the bottom bars. I found the thing to be a success, and not much trouble.

Alfred H. Pering.

# A NEW BEE PARASITE FROM MEXICO

SOME months ago Mr. Jose Rivero Carvallo sent to the office of the American Bee Journal a specimen for identification, with the statement that he had often seen it running in the hives and placed on the under part of the thorax of young queens and newly emerged workers. The specimen was found on the abdomen of a young Italian queen.

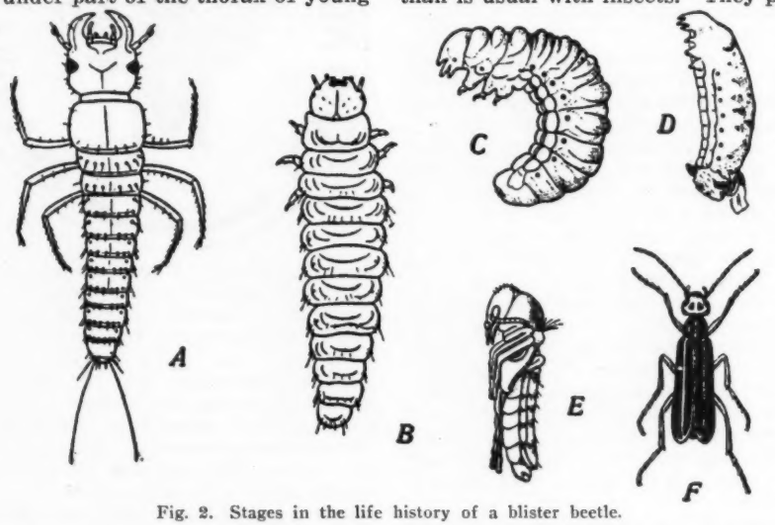



Fig. 2. Stages in the life history of a blister beetle.

The specimen was sent to Prof. Wallace Park of the Iowa College of Agriculture, who writes concerning it as follows:

March 8, 1922.

Dear Mr. Pellett:

The insect parasite sent by Mr. Carvallo of Mexico is the typical form of the **first** larval stage of the blister beetle shown in Fig. 2, A. These larvæ, in many of the species, are known to be parasitic on grasshopper eggs and the eggs and honey of some of the solitary bees. They have been found on honeybees also but not as true parasites as will be shown later.

Blister beetles belong to the family of Meloidae of which there are about two hundred species in this country. There are about three common types or colors, the solid black, the solid gray, and the yellow which has two long black stripes on each wing cover. They probably are found on goldenrod more commonly than on any other plant and feed on its pollen. They also feed upon the foliage of potatoes, beets and other plants. These beetles derive their name from the fact that they are used for making blister-plasters. The beetles are killed, dried, pulverized and made into a paste which is a powerful blistering agent, commonly known as Spanish-fly.

The life history of these beetles is truly remarkable. They undergo a greater number of transformations than is usual with insects. They pass through three larval and two pupal forms before the adult stage is reached.

The eggs are laid in the ground. The newly-hatched larvae (Fig. 2, A) have six rather long legs and are quite active. Those species that live in the nests of solitary bees reach their desired destination in a curious manner. The larva, instead of searching out a bee's nest, merely climbs upon a flower and thence upon the body of a bee. The larva holds to the bee until the nest is reached where it is shut up in a cell along with the egg of the bee. After consuming the egg, the beetle larva moults and assumes its second larval form (B) which has much shorter legs. During this stage it feeds upon the honey and having an abundance of rich food at hand, the larva now becomes sluggish and, after several moults, appears in a false pupal stage (D) with functionless mouth parts and atrophied legs. From this pseudo-pupa, a third larval form (not illustrated) emerges, fat and legless like the bee-larvae themselves, which changes to a true pupa (E) and then to the adult (F) beetle.

As a rule, parasitic insects confine their malicious attentions to a given species or, at most, a few closely related species and do not thrive on others. Unfortunately for them, the instinct by which these larvae find their way to the nests of solitary bees, is not altogether dependable. Many of the larvae attach themselves to other flower-visiting insects including flies, wasps and honeybees. They board the wrong train, as it were, and thus merely gain useless transportation. While we have found no record of these larvae being truly parasitic on honeybees, it is altogether possible that some of the two hundred or more species may prove so to be.

Further reports and additional specimens would be welcomed.

Wallace Park.
Ass't Chief in Apiculture.

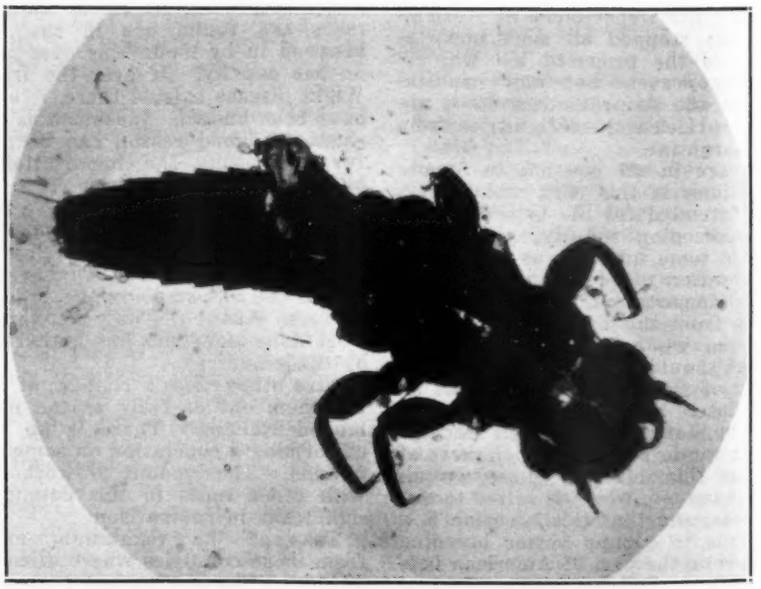


Fig. 1. Insect parasite found on queenbee (greatly magnified).

**Patent Non-Swarming Hive**

Patent No. 1,410,444 has been issued in 1921 to L. A. Aspinwall for a Non-swarming hive. This is a modification of the hive already known as the Aspinwall hive and previously patented by him.

# TEXAS APICULTURAL STATION

## Together With Some Notes Concerning the Man in Charge

By E. G. LeStourgeon

THE idea of State work in beekeeping has grown by leaps and bounds in Texas since the first appropriation was made by the Legislature in 1819. Perhaps the greatest system of purely experimental apiaries and the most complete establishment of laboratory equipment in the country will result from the work now commencing in Texas.

A large central apiary and experiment station, complete in every detail, is being built about twelve miles east of San Antonio, at the edge of the famous Edwards Escarpment, which separates Texas into its two great geological divisions. Here the two main floral and botanical associations of the state meet and mingle. Almost every variety of Texas honey plant can be found within a radius of a few miles. It is purposed to plant an arboretum of honey-producing trees and shrubs and to establish a botanical garden on a plot of ten acres bought by the State for the purpose.

A few miles west of the main station will be established a queen breeding and mating yard where improved strains of queen bees are to be raised and furnished at nominal prices to Texas beekeepers, and especially to assist the extension workers in their efforts to improve beekeeping in the box hive districts of East Texas.

The main apiary sub-stations will be the State yards now established at Dilley, in Frio County, and the A. & M. College yard at College Station. Two other large stations are proposed, one for the alfalfa belt on the Pecos River, and one in the cotton belt of northern Texas. The Texas Experiment Station has a system of 13 agricultural sub-stations scattered over the entire State and at each of these a small apiary of five colonies or more of bees will be placed. The object of this system of small outapiaries will be to determine local apiary practice needs under the varying conditions.

Briefly sketched, this will be the field of endeavor and labor of the Texas State Apiarist. He will have direct charge and supervision of all of these activities. In addition he will be expected to survey for Texas beekeepers the nectar-producing flora of the state and to determine the relative value of our honey plants. To do a work of this magnitude an exceptional man was required, and the director of our Experiment Station, Dr. B. Youngblood, wisely selected for us the one man in all the country whose varied interests, natural inclinations, versatility and broad knowledge, seemed to have molded, trained and fitted to our needs. A sketch of his early life and subsequent work may not be amiss to show how natural it was that H. B. Parks should be chosen for this important work.

Harris Braley Parks "first listened to the hum of the bees" some 40 years ago in South Central Illinois. Nothing could have been more to be expected than his love of nature. His birthplace was a farm on some old oak-clad limestone hills that once had been a populous Mound-builders village. His earliest playthings were arrowheads and fossil shells, the common pebbles in the ravines. It was doubly natural that he should become interested in the study of such things, since his father and both grandfathers had been school teachers, and the home abounded with books and magazines.

The farm itself was not of the ordinary kind. It was devoted to the raising of truck crops and small fruits in quantities sufficient to warrant carload shipments to St. Louis. One portion of the farm comprised a large orchard in which stood a two-story octagonal bee house. Here, long before the boy can remember, he received his initiation into the mysteries of beekeeping. It was the delight of his grandfather to tell how the baby would sit among the hives and hit at the busy workers with a straw, running for shelter only after he had been stung by the enraged bees.

The farm was located some distance from the small town of Carlinville, but no other children resided in the immediate neighborhood. The boy turned to the hills and forests for his amusement and he has often said that he learned how to hunt from a Collie dog that was his constant companion. Before he had arrived at the age when most children are allowed to go far away from home alone, he knew every hill and hollow within 10 miles and his knowledge of plants, birds and rocks attracted the attention of the science teachers in a college which was located in a nearby town. These men became the near friends of the boy. His knowledge of the surrounding country was of value to them and in return they taught him much of the science in which they were interested.

It was his good fortune to meet in this way Dr. Charles Robertson, who is known as one of the great authorities on the relationship between insects and plants, and Prof. W. E. Andrews, who is today a well-known authority on American botany. Work under the direction and guidance of these two men continued uninterrupted until he had passed through the city schools and received his Batchelor's Degree from Blackburn University. His first effort at scientific writing was the publication, in connection with Prof. Andrews, of a list of plants growing within his native county. It was while a student in college that he published his first article on bird life, which was the first of a long series of articles that have attracted considerable attention.

On the completion of his college course it was his intention either to teach or enter some line of work that would have to do with nature. One can imagine the young man's disappointment when on application to a teachers' agency he was informed that the salaries being paid were such that they would not advise anyone to make application for a teaching position. An investigation of the Civil Service showed almost the same condition. Just at this time an opportunity offered itself and the young man left his home state and took charge of a ranch in South Dakota. Here for five years he carried on successfully a general cattle farm. The farm and ranch work, however, did not satisfy his love for nature and scientific study, although the new surroundings were great incentives for more observation. New and strange birds and plants and unique geological formations presented themselves and in the spare moments were carefully studied, collected and compared with the material obtained in earlier days. During this time a special study of the migration of birds was carried on in connection with the Biological Survey at Washington and with the Geological Survey much cooperative work was done.

H. B. Parks.

In 1905 he was offered a position in one of the Government Contract Schools for natives, located at Sitka, Alaska. One can imagine how readily this offer was accepted and how attractive it appeared to one to whom such a trip and a chance to live and study in such a country would mean so much. During the seven years spent in the far Northwest, it was his privilege to travel extensively and to meet with a large number of noted scientists in the employment of both

the United States and of England. Here he studied almost every phase of nature from the natives with their curious ways, implements and legends down to the smallest forms of insect life which occur in that far-off land. While here he became acquainted with the Russian priests and learned the story of their pathetic attempts to keep bees in the frozen north in order to get beeswax for the services of the church.

In 1912, at the request of the Home Missionary Board of the Presbyterian Church, he took charge of a similar school in the mountains of western North Carolina. Here he had charge of some four hundred boys on a large farm connected with the school. This school is but one of many maintained by both Church and State in the "cracker" district of the mountains for the education of the mountain whites. One of the first pieces of information that reached the desk of the new superintendent was that the farm owned a large number of colonies of bees. Only two yards came under the direct management of the superintendent, but there were hundreds of colonies over which he had authority, located throughout the district many miles square. These bees were put out to be operated on the halves by the mountain people. The superintendent of the farm acted as general overseer and manager.

Two years later he took up the work of science teacher in a private college at Albany, Mo., and remained at this place until December, 1917. The summer months during this time were put in at the University of Missouri doing graduate work in beekeeping under Dr. L. Haseman, and in study of the Missouri honey flora. During this period he became identified with the beekeeping interests of Missouri and prepared for publication an exhaustive paper on the honey plants of that state.

With the coming of the World War he immediately made application for emergency work and was sent to the A. and M. College at College Stati n, Texas, with the Extension Department as an Extension Entomologist. Some few months after his arrival the position of Extension Entomologist became vacant and he was immediately selected to fill this position. Along with the many duties of the Extension Entomologist he found time to do a great deal of extension work in beekeeping and became well acquainted with the beekeepers and beekeeping conditions in all sections of the State.

When the Texas State Legislature, in 1919, created the State Experimental Apiary he was chosen to take charge of this project and lay out the contemplated work. Shortly after, in the fall of 1920, the American Honey Producers' League insisted that he should become their first secretary, and he has held that position until the present day, having accomplished the duty of organizing its various bureaus and guiding its activities.

Early in 1922 the office of State Apiculturist again became vacant and it was a source of great satisfaction to all of his friends, and especially to the beekeepers of Texas, that the Director of the Experiment Station insisted that he should again take up the work that he had started less than two years before. The enthusiasm that the Texas Legislature and the beekeepers of the State have already thrown into the apicultural experimental work gave promise that it would prove a great success. Now that the services of Mr. Parks have been assured and he has been given the duty of its direction and development we feel that the whole country can turn its eyes to Texas and not be disappointed in the expectation of seeing some valuable results.

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## CAN WE ALL WIN?

By Robert L. Siebecker

With all of the modern business principles of beekeeping put to actual practice and facing the almost unheard of general conditions, plus a much divided market as to quality and price, I often stop to try and analyze the situation from a commercial viewpoint. There are many, things, yet not so small to each individual, that must be considered and overcome to gain the desired results for the producers as well as the consumers. I here bring in the consumers because they are a most important part of our entire system in that we would do no producing were it not for the great mass of consumers.

What are these really desirable results that I believe all beekeepers are looking forward to, mayhap not with the same amount of enthusiasm, due to most natural circumstances surrounding each individual case, but with practically the same end in view? The first and foremost consideration is the financial returns on the investment of capital and labor. This to me should be at the head of the list because, whether we will it or no, the much abused dollar is still in demand, and I venture to say it always will be thus, as this is the only practical medium of exchange yet found that serves its purpose in the worldly work of supplying life's necessities and luxuries. In regard to this point we, as beekeepers do not want to exact an unjust toll, and are not in any such danger, as that can only be accomplished by complete market control, which is an absolutely impossible feat, due to the very nature of the honey business. But we can and should have a general idea of the cost of production, cost of selling and depreciation. The consumers are more than willing to pay for the overhead expense of any article purchased, and this includes honey; however, the beekeeper must do his own cost accounting before he presents his article for sale on the market.

The next big step in solving our present problems appears to be missing, as there is a lack of co-operation in practically all phases of the industry after the honey is produced. Car lot wholesale prices are confused with small lot quotations, various styles and sizes of containers combined with the jobbing prices to the grocers and the direct method of retailing to the consumer and still more to the general mixup. There seems to be no head nor tail to the entire process, but just one grand march to the "block," with the chance of unloading for what we can get. These conditions are due to one thing, and one thing only—**complete negligence of the beekeepers in formulating a businesslike plan and then carrying out that plan.** We can talk co-operation once a year or once in every two years until our minds grow weary, but remember, "he who does not advance goes backward." There is only one way out of this darkness and that is **action.** Definite action that will do away with this system of one man's success being due to another man's failure. Co-operation, not only for a fair price, but in every phase of the industry for a square deal for **all** beekeepers, each one assuming a responsibility and keen interest in the welfare of **all.** To me this is the one great hope of the future for the honey industry.

Now what must the apiculturist do to aid such a plan? He must first of all be a willing worker with his fellow man, willing to do his little part—a part that is one of the vital cogs of the great rolling wheel. He must throw off this most prevalent idea of self-interests first and adopt the new idea to work for all, first, last and all of the time. Furthermore, be must become a more efficient producer to keep pace with the great advancement in all business lines, or his place in the great wheel will become worn out, useless, and new cogs must replace those that are of no service. "Service," the one invisible word that means the success or failure of any co-operative organization. The time is coming when we will adopt the principles of co-operation eagerly and earnestly to avoid a complete breakdown, and I can see no reason for postponement to the period of forced union. Then it may be too late to work out the plans of operation, for large corporate institutions may be organized in the honey industry which, if history repeats itself, means a struggle for existence that will be hard to weather through. What a bright, or what a sad, picture of the future can be painted, and will be painted by us, according to our immediate decision in this matter!

By complete co-operation **all can win.**

Wisconsin.

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### Apis Club of Wisconsin.

The students and faculty members of the University of Wisconsin interested in scientific beekeeping have recently organized a beekeeping club known as the Apis Club of Wisconsin. There are at present fifteen members in the group and Mr. E. R. Root, C. P. Dadant and Dr. E. F. Phillips have been elected honorary members.

It is the purpose of the students to try and organize clubs at other institutions where beekeeping is taught.

## A VISIT TO THE MEDITERRANEAN REGION

**Extracts from a Letter to the Editor by Ph. J. Baldensperger.**

Constantinople, Jan., 1922.

Dear Mr. Dadant:

I have come to the Capital of Turkey, passing through four Capitals of past days, but it seems as if civilization has gone west forever.

In Rome, where a Pope Urban was a beekeeper, and whose escutcheon in St. Peter's cathedral shows the interest that the head of the Church once had in beekeeping, I saw a decadent apiary in antiquated modern hives, in the Monastery of St. Paul, out in the Campagna, kept by monks of the Trappist order. The monk in charge seemed very little versed in modern beekeeping, as he had no innovations for the apiary. His excuse was that Trappists are not allowed to speak at all, and it was only because I was a stranger asking questions that he gave me slight information. The 40 hives of this very wealthy order, located in the midst of an eucalyptus forest of several hundred thousand trees, would be better managed, he said, were the monks allowed to ask for anything; but as the Superior is sole judge and knows nothing of beekeeping, the monk has none of the modern implements necessary. The hives are of the German pattern, but of course the bees are the yellow Italian. The extracted honey was of very good taste, but he would not show me his extractor, as he said it was out of shape. His smoker was one of the old Quinby model and worked very badly. So, after a little chat on bees, I left him, rather disappointed. Here, in the country of Virgil, where the Georgics were written 2,000 years ago, apiculture, which was then away ahead of other agricultural sciences, and modern methods have hard work to penetrate.

Our steamer left Naples, the volcanoes, first Vesuvius, then Stromboli on a rugged island, and big Etna in Sicily, were sending out volumes of smoke, which spread over the mountain tops and the sea. What in the world may the people of Stromboli be doing in beekeeping? If we judge by the appearance of their low, white houses, they must be ever ready to flee from the "wrath to come." When the mountain quakes, they must very likely step into their boats and leave everything behind. There must be poor chances for any beekeeping.

When I landed at Piræus, the seaport of Athens, Greece, one of the first things I noticed was the large number of wax candles, in the shops, in the open air. This at least shows that bees thrive, though in old-style hives.

In spite of my knowledge of five languages, and although I was told on the steamer "Lamartine" that nearly everybody could speak French in Greece, I had the greatest difficulty in making myself understood, for neither the Greek nor Turkish language are known to me. I took the train for Athens and had a look at the legendary bee-mountain, Hymettus, which stretches for miles. But I could not spare the time to visit it. The thyme growing on its slopes, which produces the fragrant honey, in which the gods are said to delight, was out of my reach. I ascended the Acropolis, however, and admired the scattered marble ruins of the Parthenon. It was a beautiful, warm day, on the 20th of December, and very welcome, even for me, accustomed as I am to more sunny than rainy days. I met a man well versed in agriculture and he told me that honey was not of very great consequence there, but that beeswax was greatly produced and lavishly used in the country. Millions of pounds of it are transformed into candles, for the Greek orthodox Church does not allow the burning of any others than pure beeswax candles in the churches.

So beeswax is very high, since these candles are liberally used in every ceremony, births, weddings, funerals, church services; candles everywhere.

I had to hurry back to the boat, and we weighed anchor and proceeded. As we passed by the Island of Syra, I noticed the villages and the brushes covering the slopes of the mountains and thought of the Abbe Della Rocca, who lived here a century and a half ago and wrote his three-volume "Treaty Upon Bees" in 1790. You remember the Abbe describes a bad epidemic of bee disease, which he saw between the years 1777 and 1780. He called the disease "la rougeole" (the measles), which, according to his very accurate description, was none other than American foulbrood. This priest describes a sort of movable-frame hive which was then in use in the island and seems to have been a precursor of Huber's hive, to say nothing of Dzierzon's and Langstroth's inventions; but of course the frames were not as movable as in either of the three mentioned. The Abbe goes on to explain how the disease was spread by the people's own imprudence. They cut out the diseased combs and "spread them out in the open street," in the sun, to secure the beeswax from the combs, where, of course, other bees came and took the honey.

Whether beekeeping was entirely destroyed by that disease in the island was not stated by him, for he left for France at that time. Whether it has withstood the epidemic and has again flourished I could not find out, for our boat did not land. But they still seem to be "working everything in the open streets" in those countries, for in Piræus, in Athens, and in Smyrna especially, everything appears to be done "on the street." The saddler prepares the straw and sacks for the saddles, the wool carder hangs up the wool that he has washed across the street and you receive the drippings if you don't look out as you pass; the candle-maker prepares big cauldrons of hot wax, which is poured over the wicks, the latter suspended to a big iron ring turning around so that the wicks receive a spoonful of wax at a time and in turns. So, in the same way, they treated bee diseases openly, to the detriment of the entire corporation. Hygienic measures are at a very low level in all Greek and Turkish towns, but the slovenly way in which everything is done in Smyrna, which I visited next, beats every record, even to my once Oriental conceptions. It is 30 years since I came this way, but there has been little or no change. True, they have been at war 7 years, and Greeks and Turks are still fighting; this has the effect of shoving aside all other questions, even the most elementary. A Turk offered me what he called "pure honey." He wanted a hundred piasters the oke, which translated into American values would be about 60 cents per pound. I was told that that "pure honey" contained almost anything but honey.

It was the population of those countries which laid the foundation of the western cities on the Mediterranean, Marseilles, Antibes, Nice, for the Phenicians were great navigators; but now we can only contemplate ruins in this ancient center of civilization.

Hymettus still produces honey plants, but no decent honey pot can be bought on the streets of royal Athens. Melissa, the nurse of Jupiter, who was transformed into a bee, would hide her face if she were present to taste the so-called product of her children which is offered on the streets of Smyrna. What horrible stuff, when compared with our Alpine honey!

Up an down the streets of Constantinople they peddle "halwa," a sweet made of sesame flour, which is very cakes are put on marble slabs, in big fat, and honey kneaded together; the half-globe form, and the merchant cuts big slices with a butcher knife. As I was acquainted with this sweet from the days of my boyhood, in Jerusalem, I bought some to remember the old days. It is sweet and very substantial.

I saw there honey in a number of shops, almost door to door. Most of it is comb honey, brown, grey, yellowish, put up in round tins 4 inches across. The merchants, of course, claim the honey to be from the Bosphorus shores, but in spite of my investigations, I could not discover any apiaries. It sells at about 10 francs a kilo (about 40 cents per pound) which is a very stiff price. Broken bits of comb they offered at about 7 francs. They call the honey "bal," which means real honey, but they also offer grape-honey, sun-honey, which in either case is probably not bee's honey. I'll drop this letter in Smyrna before I leave.

Ph. J. Baldensperger.

(Many thanks, friend Baldensperger, for this interesting review of some of the Near East countries; but I wish you had written me that you were contemplating this trip. At Rome I could have given you addresses of very practical and up-to-date beekeepers. There is no doubt that in that most unattractive Cam-

pagna Romana, the contadini (peasants) are very unprogressive, and the monks are not much better. There is room for progresss there, and the educated Italians are doing all they can to bring it about.

You have evidently quoted Della Rocca from memory, for the disease which he calls "rougeole" was only an accumulation of pollen of red color. But his descriptions of other diseases are very true to nature, and I propose to translate his chapter on diseases of bees for our readers, after we finish the Huber letters. Even though that man wrote over 130 years ago, he had some very good ideas on beekeeping, but they are mixed with the false notions of the time.

It is to be hoped that some progress will be achieved in Asia Minor, Smyrna and Syria, since the western people are taking over those countries. In our May, 1921, number, we gave the account of a visit from a professor of beekeeping at Jaffa. Let us hope the efforts of these men may have some influence upon those backward countries, though we must acknowledge that civilization comes and goes, like the waves of the sea.—Editor.)

## FINDING A LOCATION

**Suggestions as to the Need of More Information Regarding Our Sources of Honey and the Behavior of Plants Under Different Conditions.**

By E. P. Stiles.

I want to establish an apiary for the production of honey. I am not particularly interested in the production of package bees and queens. Where I am, bees almost yearly fail to give any profit, therefore I must make up my mind to move. It is disagreeable and expensive to move one's home establishment, even if bees were not involved in it. It would be extremely unfortunate to incur this trouble and expense only to find that I had secured a location no better than the one I had left. How am I to protect myself against such an error?

This is a supposititious case intended to impress the importance of knowledge we do not seem to possess; at least, I do not possess it.

The first decision to be made is whether the business of producing honey for the market is sufficiently attractive to me and of sufficient importance in itself to warrant me in breaking up my home establishment, whatever it may be, and incurring the discomfort, trouble and expense in moving into some other locality and re-establishing myself. If I have wife and children, the effect of such a move on their welfare must also be considered.

For reasons satisfactory to us all, we decide that we must seek a new location for the business of honey production. Then comes the question, where shall we go?

There are some parts of the country pleasanter than others. Shall we make comfort and happiness first, or business first? or can we accomplish all at once?

It is very evident that the problem is very much simplified if we choose to put business first, for, in that case, we set out to find the locality where the greatest number of well-known, reliable honey plants may be found grouped together. We will try to find that place where white clover, sweet clover, alfalfa and alsike abound (if there is such a place) or where horsemint, mesquite, catclaw and huajillo are abundant or where the approximately reliable honey plants of southeastern United States group themselves, or those of the Pacific slope. These are sections where honey producers are already making a success, and it is their success which must be our guide, because, if we go looking about for white clover and find it, how are we to know that it will produce nectar in that locality? We haven't found out why it produces or refuses to produce nectar, therefore we must find someone to tell us what it does in that locality. In all probability we will get contradictory statements from persons keeping bees in the neighborhood. Commercial beekeepers are not likely to contradict each other in regard to the source of honey, but we are trying to keep as far away from commercial beekeepers as possible. The same comment applies to alfalfa as to white clover and, perhaps, to alsike and to white sweet clover. It certainly applies to yellow sweet clover, for correspondents of bee journals mention localities where yellow sweet clover produces nectar abundantly. I know localities where it does not attract the slightest attention from bees. Then in the list "horsemint, mesquite, catclaw and huajillo:" Two species of horsemint, white and yellow, are the only plants I know of which are unfailing in the yield of nectar. I have never found them in any situation or season where they did not produce it, though sometimes, on account of weather conditions, the bees don't get all of it, and the plants themselves, being winter annuals, sometimes fail to appear. The other plants in the list are uncertain of yield.

But suppose we prefer to make comfort and happiness first and business second. We find a place where we should like to live and we find there are no commercial beemen in the locality. It looks like a splendid place to keep bees; there are so many kinds of plants reputed to be good producers of nectar. While none of the plants have a very conspicuous reputation as yielders of nectar, yet the great variety we find here, both herbaceous and arboreal, must furnish a large quantity of nectar, but how can we be sure they will yield nectar in the locality we find them? There are persons in this neighborhood who have bees that keep themselves. We learn from these persons that bees do well all the time. We ask the source of the honey. Most of them don't know and don't care. Some of them say positively that the honey comes from a certain plant which I know never produces nectar, and this knowledge of mine is supported, in a measure, by others who assert that the honey comes from some other plant which I know with equal certainty does not produce nectar. I have had owners of bees tell me that their honey came from "corn tassels" and others that it came from the axils of sorghum leaves. (Doubtless honey dew). What are we to do under these circumstances? We can't locate here with a satisfactory degree of safety.

I have seen acres white with the bloom of wild blackberry, but not a bee to be found about it. Acres and acres of hawthorne of several species, but not a bee. Red hillsides and flat prairies covered with the partridge pea, so productive in Georgia, but not a bee. I have kept bees in Texas many years, but have never harvested an ounce of cotton honey. Heartsease is a semi-acquatic plant and seemingly ought to be constant or regular in its yield of nectar. It is abundant in most of the Texas coast, but I have never seen a bee on it. I have seen thousands of acres of "broom weed," but never a bee on it until last year on some straggling plants on the side of a street. I had begun to doubt if I knew what was commonly called broom weed in Texas. Elm is generally supposed to furnish nothing but pollen. I have had my bees fill their combs in August with honey from it. I admit it is a Texas species I have never seen outside of the state. I have studied botany as a hobby since I was ten. I have visited nearly all of the states east of the Mississippi and studied botany in some of them. I know that no dependence can be placed upon most plants to yield nectar in all situations, and I know that we know nothing of the conditions which operate for or against the secretion of nectar. In fact, I remember perfectly when the general supposition of botanists was that a plant that produced nectar in one locality, produced it in all, and at least one prominent botanist taught that nectar was provided to secure the pollenization of such plants as secreted it. What would he say now when he found that the same plant in other localities was pollenated without the nectar bait?

My objective point in this letter is to suggest that when a beekeeper finds a plant secreting a worth while quantity of nectar of good quality, that he not only report the name of the plant, but that he state also the locality, the period of blooming the soil in which it grew, whether wet or dry, level or rolling, light or heavy, as nearly as possible its elevation above sea level, the season as to temperature, rainfall and humidity, and, perhaps, there are other points just as important. If we could get this information and tabulate it, we might begin to approach a knowledge which would give us some guidance in the selection of a location for an apiary and at the same time increase our scientific knowledge.

The common names of plants are very unreliable. The same plant may have a half dozen names, one in each location, and sometimes different

plants are known by the same name in different localities. "Blue curl" is one thing in California and quite another in Texas, yet it happens that both yield nectar, thereby increasing the doubt regarding their identity. Plants usually have but one botanical name, and by it are known throughout the world. If a beekeeper wants to know this name, let him remember to send the botanist from whom he expects to get the name, all the parts of the plant obtainable, as root (if herbaceous), stem, leaf, flower, seed pod and seed. If trees or vines, he should send samples of bark, twigs and buds in addition. The attempt to classify plants without all of these parts present has filled our botanical books with errors.

Texas.

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## THE BEE AN ENGINE FOR HEAT PRODUCTION

By Dr. Brunnich

Each bee is a little stove of a wonderful kind, able to regulate its temperature with extreme accuracy as circumstances require. For me it is an evident fact that the production of warmth in the bee's body is almost exclusively of chemical character; the warmth is generated by a slow combustion of sugar (hydrate of carbon) in the bee's body; we do not know exactly in which organs. It may be found in certain glands (of Malpighi). I protest against the view that the warmth is produced only by the circuitous tissues and uneconomical transformation of motion, as held by some authors; consider the quiet rest of building swarm bees, which must produce a great deal of warmth, for making the wax malleable. The generation of heat is not a great miracle, it requires only sufficient food and the bee has to absorb enough oxygen to consume the hydrate of carbon; but it seems almost a miracle to see what an acute sense of warmth bees must have that they be able to regulate the temperature as circumstances require.

The bees not only understand how to regulate the temperature but they can bring up to the desired degree the environing room and certain objects (brood). Bees can warm up the brood, or a queen cell, or the space in which the queen is moving, in different ways, whether there are many of them with a moderate temperature surrounding the queen cell or whether there are only a few bees, which must have a higher temperature to produce the necessary warmth. Without this faculty it would be inconceivable that a weak colony should develop, in times of chill, a sufficient warmth for the growing brood, as a giant colony might do.

One of the best examples is the economy of the warmth in the bee cluster in winter. This management during the extreme cold is indeed of a wonderful expediency. To save warmth in the best way, bees are crowded so that nowhere are there considerable vacuums. The cells in the midst of the cluster are all occupied with inactive bees, the space between the combs is alive with crawling bees, for the center, where the mother dwells, the temperature represents the maximum—more than 85 degrees F.—towards the periphery the warmth diminishes so that the peripheral bees have still a temperature of 57 degrees F., whether it is outdoors 30 degrees F. above or 20 degrees F. below. The temperature of the border bees does not sink under 57 degrees F., else they would chill and die. If the temperature of the outermost bees were higher than 57 degrees F. it would be prodigality, because those bees irradiate much more warmth at 67 degrees F. than at 57 degrees F. The bee cluster in winter is not a resting mass but, insensibly to us, there is constantly an equal current and motion. The border bees, as our frontier troop, after having done their service for a given time, retire into the interior, while other sisters fulfill the same task of a cover for the cluster; the bees in the cells, after having consumed their fuel, crawl out to take food and others occupy their place. So it goes on, day and night, according to immovable laws, till the ascending outside temperature allows the bees to loosen their cluster and adapt themselves more suitably to the changed conditions.

Indeed, with the advancing season, quite contrary tasks are to be fulfilled. When the sun stands in his zenith, when the hive is full of brood, which produces warmth, the bees have to see to it that the temperature in the hive does not exceed a certain height. They show it by having on the brood combs only the indispensable number of nurse bees, and by ventilation of the hive, by fanning.

If they are hindered in their precautionary measures, for instance if they are transported with insufficient ventilation, we see the sad consequences: the temperature in the hive rises till the combs break down and the inhabitants of the fortress are suffocated.

Switzerland.

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## NECTAR SECRETION IN THE TROPICS

By Axel Holst

I have read with great interest the articles on nectar secretion, which have made me look on certain things here from a new viewpoint. Here in the tropics we have always known that we can count on a day's good honey-flow after a night where the **dew** has fallen heavily (the dew-fall is very heavy here, in fact making up for lack of rain in the dry season). We have naturally ascribed this copiousness of nectar to the **moisture** from the heavy dew—but, naturally, the colder the evening and night, the heavier the dew; so it might be the **cold** after all, or vice versa.

In a like manner, the best days for copious nectar secretion are calm, somewhat cloudy days, hot, without rain—"depressing" days, with a low barometer. We have generally taken it, that it was the **moisture** in the air which influenced the nectar-secretion, but it might just as well be the **low barometric pressure** influencing the sap-pressure inside the plant.

On such days with 'real weather for earthquake" the nectar secretion can be so heavy that I have heard the nectar dripping from single trees in the woods or "high bush" as we call it here. Be kind enough to understand that this is not a common phenomenon, and that you don't need an umbrella for that sake; but for a lover of nature it is yet very interesting in the stillness of the woods on such days to hear the faint tinkling of the falling drops, giving as it was a peep into the laboratory or workshop of Nature, and an idea of the values that are being wasted for the beekeepers of the world.

St. Thomas, Virgin Islands.

## BEEKEEPERS BY THE WAY

Mrs. Ella Stockman, of Maine, widely known as the "bee woman."

### The Bee Sting Woman

Many fantastic tales have gone the rounds of the newspapers about the big profits to be derived from raising bees for the poison extracted from their stings. While many of these stories of great profits from sting poison are ridiculous and impossible, Mrs. Ella N. Stockman of Maine, has been making money from this source for many years. There is a limited demand from certain dealers for bee sting poison and Mrs. Stockman has given some attention to this trade.

She is best known as the editor of the bee department of the Maine Farmer which she conducted for a long time. Mrs. Stockman has spent more than fifty years among the bees and is well known throughout New England as well as to many of our readers in other regions.

## HYBRID VS. ITALIAN

By John Protheroe

I cannot claim to have gone deeply into Mendelism, and feel myself correspondingly handicapped in writing on this subject; but there are, surely, some patent facts obvious to breeders of all live stock. New varieties of dogs and poultry have been introduced and fairly well fixed within my memory by hybridizing. Of course, they show throw-backs; White Wyandottes continue to develop single combs, to the annoyance of their breeders, and Sealyham terriers will insist on getting the legs of wire-haired, with the muzzle of West Highland terriers. Among White Wyandottes there are Madison Square winners and there are fryers, but between these two extremes we may say that there is a distinct and fixed breed of White Wyandottes. The modern race horse is a fixed hybrid between the Arab and the European. The progeny of the famous "Godolphin" Arab stallion proved so superior on the race course to the British thoroughbred that every horse seen today on the Derby field has that famous steed in his ancestry. Baldensperger is of the opinion that the modern Italian bee is a hybrid between the European black and a golden bee originating in North Africa. The drone markings on this home-grown Italian bee are constant, whereas those on the American-Italian 3-bander are not. The cross between the European black and the North African golden which resulted in the modern Italian bee took place during the Roman colonization of North Africa and the intimate relations between Italy and that country which flourished before the Mohammedan invasion. How long, then, does it take to fix a hybrid into a variety? The 3-banded Americo-Italian is constant neither in marking nor disposition; why then should Mr. Barber insist on the advantages of breeding from that type alone? As far as my experience goes, the extraordinary good temper of Carniolans is a fixed characteristic, whereas the 3-banded varies greatly in this respect. Is there any proof to the assertion that the Carniolan is less resistant to disease than the Italian? Has Dr. White or anyone else ever worked this out? I should doubt the assertion myself; for sheer rampant vitality give me the Carniolan. That is why they swarm so idiotically. They feel like March hares.

Virginia.

(Our correspondent is mistaken in saying that the markings of the Italian home-grown drone are constant. They are no more regular than those of the Americo-Italian drone. Likewise for the queens, there is a variation in appearance. But gentleness is as constant in the Italian bee at its home as in America, provided it is properly handled. Some people would make any bees angry. From the correspondence received from Mr. Baldensperger, it would appear that the common bees at the same latitude as Italy (in France), are as gentle as the pure Italians, and also as hardy. As to the great swarming propensity of the Carniolan, Frank Benton attributed it to the small hives in which they have been kept, for centuries, in Carniola.—Editor.)

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## ERRORS CONCERNING HONEY-PRODUCING PLANTS

By Okonomierat Wust

(From Deutsche Illustrierte Bienenzeitung, September, 1921.)

For 40 years I have busied myself in a study of the honey-producing plants; and so I have through countless experiments and observations discovered many errors that have appeared in apiarian magazines, which could not stand the test of a searching proof.

I found many statements that our green blossom plants are not visited by the honeybees, since the green color carries no attraction for them. I sowed the test plots with green blossoming plants, and it became evident that the bees would often work industriously on such plants.

On the Hellebores (**Helleborus viridis** and **foetidus**), which are practically of the same color as the leaves, except that the tint of the bloom is a shade lighter, I observed the bees working hundreds of times and as much for nectar as for pollen. Yes, even where they grew or were planted in the wilderness, I could count them as the most frequented of the spring flowers.

The stinking Hellebore is shunned by the bees, as I had read, and as I had long observed, on account of its objectionable odor. Also the other kind, with white bloom, as Helleborus niger, niger major, niger multifloris and niger praecox, which through their color attract the bees, are accounted amongst our excellent honey plants.

In comparison, the kinds like Helleborus atrorubens, purpurescens, as well as subdivisions of the same, which have manifold tints of colors, but always with a preponderant green tone or shade, are always honey plants to be counted upon.

Mercury (**Mercurialis annua L.**), which is found in this vicinity, has very inconspicuous green blossoms, hardly distinguishable from the leaves. Its male plants (the plant is separated into many species), in the late fall are visited much, although producing sparingly of pollen. On the contrary, the female plants are not worthy of notice.

Also the Creeper (**Hedera Helix L.**) has more green than golden appearing blossoms that are not at all clearly distinguishable from the leaves. But where it occurs in our forests, it offers a very good proof that the bees go more by scent than by color in their search for bloom.

It is often asserted that from both Lamium maculatum L, and Lamium album, the spotted and white Lamiums, the bees often obtain pollen but no honey, because the nectar is so deep in the tube of the corolla that the bees with their short tongues cannot reach it.

Thousands of times I have lain on the ground beside the Lamium to watch the bees as they searched for nectar from these blossoms. The bee alighted on the lip of the blossom and inserted her proboscis with much force as deep as possible, and as the corolla at the upper end opened, the bee could force in her head and thus advance her tongue to the bottom of the corolla, where the nectar awaited her. After watching this, one can venture the assertion that in many cases through the force of the bees' head similar blossoms might be opened and the nectar made available.

In our violets, in which the anther leaves are transformed into nectaries, it is also known that the bees are the means of fertilization, which is not the case with Viola odorata, mirabilis and collina, because these are cleistogamic plants which fertilize themselves and in spring bring forth their motley flowers. In summer, however, they produce very small green cleistogamic blooms which produce seed for reproduction as Viola collina, as well as an under-earth creeping pistil.

The night-blooming varieties all have very long corollas, which are too deep, in the form of a tube, and are only reached by long-snouted night butterflies. Notwithstanding, bees and bumblebees get the nectar, since in favorable weather the nectar secretes rapidly and constantly. The narrow stems, in which 8 stamens reach to the bottom of the calyx (between which the pistil with the female cicatrice is imbedded) stick up into the air like a capillary tube and nectar gathers there often in drops as large as a pea. One can observe this especially with Oenothera lamarckiana.

Of the beautiful Dicentra spectabilis it has also been observed that the bees can get only pollen and no nectar. But whoever will observe the bees' actions carefully will see that they alight laterally on the pocket-shaped blossom and force their head with proboscis deep into the blossom, bending themselves in half-moon shape, thus pushing sideways with the abdomen, so that they often are over half hidden in the blossom. In this manner they reach the nectar of the blossom and at the same time fertilize it.

**Aquilegia,** like the Chrysantna, Hylodgensis, etc., have very long spurs, on account of which the bees could not reach the nectar in case nature did not come to their help. The pollen lies right at the top of the blossom, so that the bees can readily gather it, and they work the blossoms industriously. In favorable weather the secretion of nectar is so great that it oft times flows up the narrow spurs and fills the blossoms, that the bees may get their share.

The syringa bush, of which many species occur, also has too long a calyx for the bees to get the nectar. But here, as in the case of the red clover (**Trifolium pratense L.**), if the weather is favorable, the nectar secretion fills the blossoms to the point where the bees may reach it. On

that account the Greek lilac (**Syringa persicari**) yields honey and is visited annually by the bees.

Also in the flat meadow pea (**Lathyrus praetensis**) it is generally recognized that the bees get no honey —only pollen. But whoever will carefully observe will find that they succeed in getting nectar from the most difficult flowers. By a similar act they alight on the carina, force their head between the petals of the bloom and pry them so far apart as to get at the nectar below.

With the downy vetch (**Vicia villosa-Roth**) which counts as a major crop on the farms and is considered one of the best honey plants, the nectar can be gathered by the bees only through previous preparation of the blossom by the humblebee.

## LANGSTROTH ON CHILLED QUEENS

While at the Ames short course I was talking with Prof. Wallace Park about hand fertilization or drone eggs. He remarked that drone-laying queens could be obtained by refrigerating queen bees. I said no; that Langstroth had tried it and failed; but he said he was sure Langstroth had succeeded. We dropped the subject, but I had in mind the paragraph on page 362, Langstroth reprint, telling of a queen having been reduced to a torpid condition three times and afterward producing regular worker brood.

Last night while looking up something in Dadant-Langstroth edition of 1889 (I have no later copy at hand), I ran across paragraph 151, page 62, in which an exactly opposite result was obtained. I cannot help wondering about these two statements. Possibly two trials produced different results. E. M. Cole.

Iowa.

Yes, the results of refrigerating queens are different, probably according to the degree of refrigeration which they have to endure. The quotation from the Dadant-Langstroth book was taken verbatim from Mr. Langstroth's third edition, page 327, showing that he had gained additional experience.

Besides, if you will refer to page 410 of the American Bee Journal for 1921, you will find the experience of Mr. Elias Fox, in which he mentions a queen which was chilled and revived and proved very prolific after that experience.

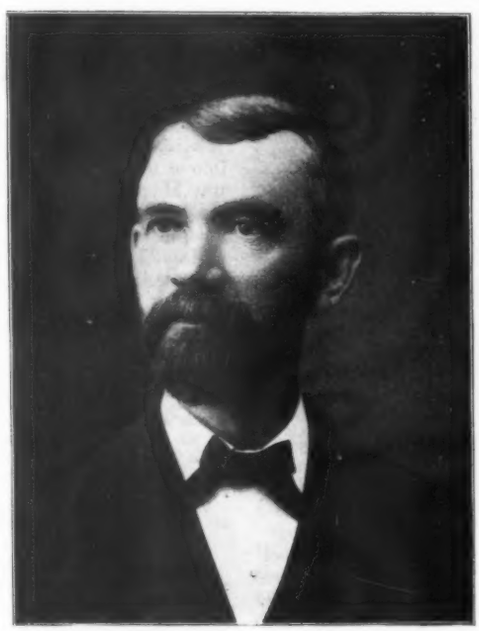
Again, on page 156 of the American Bee Journal for May 1919, we gave a translation of a statement by Marius Barthelemy, Director of the Experimental Apiary of Marseilles, France, in which he states that a queen which had been dipped in honey diluted in very cold water became a drone-layer at first, but slowly regained her ability to lay worker eggs and finally returned to normal conditions. These experiments indicate that different conditions in similar experiments will bring about varying results. So we must not be too sure of ourselves when we have secured a certain condition in an experiment until we repeat it to make sure of possible exceptions.—Editor.

## DEATH OF R. A. HOLEKAMP

By C. P. Dadant

One of the most active and successful beekeepers of Missouri, Robert A. Holekamp, died at his home in Webster Groves, near St. Louis, on May 2, aged 74 years.

Mr. Holekamp served as a member of the Executive Board of the Honey Producers' League for a number of years. When, in 1904, the Beekeepers' National Association met at St. Louis, he was very active in making arrangements for the reception of the members, and it was due partly to his initiative that the meeting was a success. He was a man of great determination, and when foulbrood appeared in his vicinity, he took active steps to secure a state law concerning its cure. A measure proposed by him and presented to the Legislature of Missouri was passed by both Houses and then vetoed unexpectedly by Governor Folk, who thought this was just a "pork barrel" scheme. He undertook to convince the Governor of the wisdom of the measure, and succeeded so well that when the bill was again presented it was passed and became a law. He was at that time Secretary of the Missouri State Association.



R. A. Holekamp.

Mr. Holekamp was born in Nordstemmen, Hanover, , May 4, 1848, served as an officer in the German army for a couple of years, then emigrated to America. He lived in St. Louis and vicinity for 52 years. He served in the capacity of hardware employee, bank teller, manager of a sash and door factory which he purchased and owned later; then he moved to the Ozarks for his health and was busy cutting timber and making lumber for a number of years. He then returned to St. Louis, where he owned a surgical instrument house. At the time of his death he was head of the Holekamp Lumber Company, managed by him and his four sons. In 1878 he married Miss Jennie Henckler, and they had six children, who all survive him.

During all this time Mr. Holekamp was a successful beekeeper, a reader of the bee magazines and a writer on all subjects of interest. As early as 1903, when Mr. York was editor of this magazine, he wrote to him: "The American Bee Journal is the only paper of those that I subscribe for that I read from beginning to end; I always find something new and interesting."

His death was caused by heart trouble and he was sick only a week.

## CANADA STOPS IMPORTATIONS

Department of Agriculture, Canada,
Deputy Minister's Office, Ottawa.

Under and by virtue of the authority conferred upon me by the provisions of the Order in Council of November 30, 1909, containing regulations relating to Animals' Quarantine under authority of the Animal Contagious Disease Act, Chapter 11-3, Edward VII, I do hereby order that:

On and after the 1st day of May, 1922, the importation into Canada of bees, used or second-hand hives, or hive goods or products, excepting honey or wax, from the Continent of Europe, is hereby prohibited, owing to the danger of introducing a contagious disease of bees known as "Isle of Wight" disease.

(Signed) J. N. Grisdale,
Deputy Minister of Agriculture.

### Sheppard Provincial Apiarist

W. J. Sheppard, of Nelson, has been appointed as Provincial Apiarist of British Columbia. Mr. Sheppard has served for many years as chief inspector of apiaries. A recent change in the law places special emphasis on educational work which will be administered under the same direction.

# THE EDITOR'S ANSWERS

**When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.**

### Requeening

Deciding to do some requeening this year, what month would be the best to requeen? I noticed some beekeepers advertising queens for delivery in May and June. Could I requeen before the honey-flow starts?

WISCONSIN.

Answer.—You can requeen at any time when you can buy queens and receive them safely. That is usually after the 15th of May. Of course if your queens are good and prolific it is as well to wait until after the crop, especially as it is more difficult to find a queen in a hive which is very full of bees. But the most satisfactory time to change queens is near the end of the honey crop, when there is still honey in the fields.

Do not take out the old queen until you have the young queen in hand to replace her.

You can also requeen before the honey flow starts, but there will be a little loss of brood between the time when you take out the old queen and the new queen gets into full work, for a queen is always a little tired after a trip.

### Transferring

1. I have about 30 colonies of bees in old box hives. I want to change them; can I put them on top of my new hives all fixed with full sheets of foundation?

I can fix them so the bees will have to go down through the lower hive to get out.

2. Will they fill the lower hive so I can take the old one off in the fall and do away with it?

3. Do you think the queen will go down in the lower hive by fall?

4. I have driven out a good many of them by taking the old hive away for a few feet and putting the new one in its place; then smoke them out of the old one and tear it to pieces; but this method is bad, as you kill so many bees, and you are apt to kill the queen.

5. There is no way I could put the new hive on top of the old one, if I could I believe it would be better.

CALIFORNIA.

Answers.—1 to 5. You can probably do better by turning your box hive over, bottom side up, and fit the movable frame hive over it, closing the openings that would give too much space for exit. In this way you will have the movable frame hive closer to the brood and some time or other the queen will go up into it. If she does not do so, you may drive her some warm day, and if you have provided sheets of foundation in the frames you will be astonished at the speed with which they will occupy it.

We like to transfer the combs by driving the bees and if it is done carefully and neatly there is no danger of crushing any bees. But it is quite a task.

Putting the movable frame hive at the bottom would be much less satisfactory, as the queen is more willing to go up than to go down.

### Poor Winter—Combs

1. I started beekeeping last year and have had fair success, until this winter when two of my colonies winter killed. I used the "Ortan tenement hive" as illustrated in the "ABC of Bee Culture," had them warmly packed, but used no porous material to cover frames to absorb moisture and left small entrances both in the large hive and the small hive that I put in. The others of the ten colonies wintered well up to this time but these two died in February. To what do you attribute the cause of dysentery under these conditions?

2. Could I use these combs or whole hives for bees again this summer? They are damp and covered with the brownish substance as described in bee literature.

3. I would like to know of some way to make paint stick to galvanized sheet iron or tin as it is more often called.

NEBRASKA.

Answers.—1. The cause of dysentery may have been in bad winter food, such as fruit juice or late gathered honey which remained unripe. Or it may be the bees lacked ventilation to evaporate the moisture. I believe it is a mistake to dispense with porous material in the super over the brood chamber. A good covering of porous material acts like a woolen blanket over your bed, while a moisture-proof covering acts like an oil cloth covering.

2. Yes, you can use both the combs and the hives, but I would recommend to either give those combs one at a time to strong colonies to clean, to expose them to the air in a dry spot, for several days in order to dry them.

3. A very thin coat of paint will stick to iron or tin better than a thick coat. Remember that it takes very little of it because, it does not enter the pores. A good plan might be to sandpaper the surface of the metal. When tin or iron is once slightly rusty, paint sticks to it better than when it is new.

### Granulation

1. In bottling honey at extracting time I find that the honey granulates easily and quickly if not heated. On the other hand, heating tends to sacrifice some of the clear white appearance of the pure clover product. If the bottled honey should be heated by the sun, instead of artificial heat, would granulation be retarded and the color of the product preserved?

2. In this respect, what is the best method of bottling direct from the extractor?

MAINE.

Answers.—1. I do not know positively that sun heat would retard granulation, although I am inclined to believe that it would, for if the honey thus heated is allowed to evaporate, it will be thicker and very thick honey has a tendency to remain liquid longer, some kinds at least. I remember when, in 1883 or 84, at a meeting in Syracuse, N. Y., L. C. Root, son-in-law of Quinby, exhibited honey from basswood which was not yet granulated in January, and asserted that it was because it was very fully ripened. I was inclined to doubt this statement, but I knew that unripe basswood honey granulates readily and in very coarse granules. I had occasion, later, to ascertain that he was correct. Sun-heat would surely leave the color uninjured.

2. I do not believe that I would bottle direct from the extractor. My experience is that in newly extracted honey there are moats and particles of wax which float about and these should be allowed to come to the surface, which may take several days. Better draw the honey off and fill the jars a few days later.

### Observation Hive

I am planning to move one frame of brood from my winter hive to my observation hive. What time could this transfer safely be made? How far should I set the observation hive from the old stand?

NEBRASKA.

Answer.—Any time when a colony of bees is strong enough to spare a comb of brood, with plenty of young bees, is the proper time to stock an observation hive. Usually the beginning of June is good. Put in more than enough young bees, so that if any go back to the old stand, there will be plenty left. We have the habit of closing them up and putting the nucleus in a cool cellar for 24 to 48 hours; so they may get used to their new home.

As to the location for the observation hive, if you follow the instructions above, you may place it anywhere in easy reach of the family and the friends. There is nothing more interesting than to watch a nucleus of this kind rearing a queen. In fact, whether they are rearing or have a queen, or are hopelessly queenless, there is always something to see and to learn. Too few people make it a custom to keep an observing hive through the summer. It is worth all that it costs.

### Male Progeny

If a queen is mismated but her mother is pure and purely mated, is the male progeny of the younger queen pure?

ALABAMA.

Answer.—Yes, the male progeny of a queen of pure breed, impurely mated, is pure because a queen does not need to be mated to produce eggs hatching as drones. It was proved, years ago, that a queen that was confined till she was too old to mate, would nevertheless produce eggs that would hatch, but they would be all drones. The same thing may be said of workers, that never do mate. They may sometimes be able to lay eggs, they are then called drone-laying workers, because all the eggs which they lay hatch as drones. That faculty of laying eggs that will hatch, without previous mating was discovered by Dzierzon and is called "parthenogenesis." Of course, since the eggs which hatch as drones did not need fecundation they do not follow the law of hybridization. In other words a drone has no father, only a grandfather. This peculiarity is special to bees and a few other insects.

### European Foulbrood

I have several colonies of bees that were treated last season for European Foulbrood and at the last examination they were found clean.

1. Is the disease liable to reappear this season and what treatment would you advise in case it does?

They were requeened last year with a good strain of Italians, colonies being very strong.

2. Is it possible to stamp out the disease in a section of territory so that it will not make its appearance again?

3. If this is not possible, please explain why it cannot be done.

NEW BURNSWICK.

Answers.—1. I hardly think the disease will reappear. Changing the queen for a young vigorous queen is the only remedy that has been found good so far.

2. Usually an epidemic of this disease, after it is cured, is likely to reappear. So it is worth while to watch the colonies.

3. If we knew what was the origin of the disease, we would be much farther along than we are. But I kept bees for over 40 years without seeing a trace of any brood disease and then found it spread pretty generallly in localities where there appeared to be no actual plausible cause for it. We know this disease is due to Bacillus pluton. But where does Bacillus pluton come from? We might say the same of American foulbrood. We know it is caused by Bacillus larvae, but we don't know where it comes from, or whether some other form of life can bring it to us, as the mosquito

"Stegomia" brings yellow fever. We have much to learn yet.

### Queen Rearing

I am an enthusiastic "back-lotter" with 15 colonies Italian bees in 10-frame hives; all of the colonies having been re-queened last August with queens purchased from breeder. One of the queens has shown herself so superior to the others in prolificness, and her progeny being so superior in gentleness, hardiness and honey-gathering qualities that I desire to re-queen all of the colonies sometime this year with her stock.

I would be pleased if you will advise me in detail the best, simplest and safest way to do the requeening desired; I have read several treatises on the subject but they all seem to deal with the subject in a much more intricate way than the task I have in mind justifies. If you will give me specific directions in the matter I will follow them precisely and shall be glad to report results to you. I produce comb honey in sections.

VIRGINIA.

Answer.—Have a frame supplied with a strip of foundation hanging half to two-thirds of the way down from the top bar. At the time, when you wish to rear queens, which must be only when the colonies are fairly strong, insert that frame of foundation in the center of the brood combs of your choice queen. Watch that comb and just as soon as it is filled with eggs and hatching larvae, remove it and give it to a colony whose queen has just been removed. Remove also all the brood of that colony, dividing it among others. In this way those bees will have but the one comb of very young brood from which to rear queens of your best breed. Feed them a little with warm, thin food. In nine days, count the queen-cells; there will more than likely be a greater number than you will need. On the same day, kill or remove the queens that you wish to replace, and on the next day, the tenth, insert a queen-cell in each colony from which the queen has been removed. If you have supernumeracy queen-cells you may save them by putting them in cages, to replace those that may be destroyed. But if you do the thing right, you should have almost universal success. You may renew the queen-rearing in the same way, to replace such queens as fail to mate and lay, a week or so later.

There are many other ways and many improvements on this method, but that is the shortest and least intricate way. If you want more methods and details, read Pellett's Queen Rearing book. He has about exhausted the subject.

### Honey—Weight—Sealing, Etc.

1. How many full Hoffman-Langstroth combs filled with honey are needed for a strong colony to feed on from November to May?
2. How many pounds of honey in a full Hoffman comb?
3. Will honey spoil if corked when cold?
4. How is a thermometer used when melting honey in June? Is it put in the water to find out the degrees?
5. Is honey corked tight when hot?
6. Which are the best jars for honey, flint glass or plain glass?
7. About what price will honey sell for in 1-lb. jars, to stores in the Eastern States?
8. Does a honey extractor have to have wire netting on the sides where frames of honey go in? and will a honey extractor work well without wire netting, if the frame is held in tight?
9. Will the wax on the 1-lb. jar covers come off and drop on the honey if it is screwed on tight when hot? CONNECTICUT.

Answers—1. This depends upon the strength of the colony, the locality and the season. Besides, combs of honey are rarely filled from end to end and from top to bottom. As they are usually filled, and in this part of the country it takes about 8 combs, two-thirds full. Sometimes there is considerable pollen in the combs, besides the honey. Then more is needed, for pollen is not winter food.

2. A very full comb would probably hold about 8 pounds of honey, but we rarely find them that full. Perhaps 7 pounds would be a good average.

3. No, honey does not spoil when ripe and sealed.

4. If you need a thermometer, put it in the water in which the jars are kept. You can usually tell by dipping the finger in the water. It should not be scalding hot.

5. You may cork it tight when hot, provided you do not heat it any further, but let it cool.

6. The jars are, of course, those made of clear glass, because they display the honey to better advantage, but many people use the cheaper glass.

7. Prices vary very much, for beekeepers have not yet united together to have a uniform price. A pound of honey in glass sells all the way from 25 to 40 cents, at retail. About 20 per cent is allowed to the retailer.

8. Extractors are supplied with sufficient screen on the baskets when they are sold by the maker. It is not necessary to add any netting, though you may do it if you wish, but it is more or less in the way of the honey.

9. The waxed paper which is put under the cover of glass jars does not usually drop any wax in the honey. It should not be waxed so thick as to do that.

### Bee Meetings Arranged By American Honey Producers' League Schedule Committee

June 24—Portland, Oregon, H. A. Scullen, Secy., Oregon Association, Corvallis, Oregon.

June 27—Corvallis, Oregon, H. A. Scullen, Secy., Oregon Association, Corvallis, Oregon.

June 29—Central Oregon District, H. A. Scullen, Secy., Oregon Association, Corvallis, Oregon.

July 1—Hermiston, Oregon, H. A. Scullen, Secy., Oregon Association, Corvallis, Oregon.

July 3—Ontario, Oregon, H. A. Scullen, Secy., Oregon Association, Corvallis, Oregon.

June 9—Mitchell, South Dakota, Mrs. L. B. Slade, Mitchell, South Dakota.

July 7 and 8—Missouri.

July 21 and 22—Louisiana.

July 24 and 25—Mississippi.

August 16 and 17—New Hampshire.

August 7 to 11, inc.—Wisconsin Beekeepers' Chautauqua, Green Bay, Wis.

August 12—Vermont.

August 24 and 25—Georgia.

August 30 and 31—North Carolina.

### New Jersey Summer Meetings

Six summer meetings have been announced by Secretary Carr, of the New Jersey Association. The first has already been held, on May 25. The rest are as follows: June 5, Mullica Hill, Gloucester County; June 20, Hainesville, Sussex County; July 8, near Princeton, Mercer County; August 10, Newfoundland, Morris County, and September 9, Plainfield, Somerset County.

Those desiring further information should write to E. G. Carr, New Egypt, N. J.

### Sugar Consumption

According to figures recently given out the consumption of sugar in the United States amounts to 9,907,878,968 pounds or 91.9 pounds per capita.

## SWEET CLOVER BY THE ROADSIDE

By M. P. Woodworth

There was an abundance of white and alsike clover this last summer, but it was well on to maturity before a bee could be seen on the blossoms. Finally the weather warmed up, and before it was too late the bees rushed to the pastures and meadows and gathered the precious nectar. The flow lasted a few days and dried up.

There is a large amount of clover growing along our highways which is a big boon to the beekeeper. If more of this could be allowed to grow it would work not only to the good of the beeman who gets the honey, but also of the farmer who wants to inoculate his soil for alfalfa. Beekeepers should protest as a group against reckless cutting of roadsides where a large crop of sweet clover is in bloom. No doubt, where the highway commissioners and road patrol men understand the value of sweet clover as a honey plant, they will co-operate with the beekeeper in this matter. For the past few years I have had to use persuasive methods with one road patrol man in particular. One day I found him with his scythe moving sweet clover along my own roadside. In the argument that followed it developed that this gentleman regarded this clover as a weed and congratulated himself on being able to slaughter it right and left. After some talking on honey and honey plants, the said patrolman yielded and did not cut the clover along my own roadside. The work of denuding our roadsides goes on, however,. and everything of beauty or utility is cut out. The argument is put forth that barren roadsides are more pleasing to the eye. I think I enjoy seeing the neat and trim as well as most folks, but I can see no beauty, no economy, in roadsides laid waste. There is another side to this matter, and I think I can more clearly emphasize it by quoting from "Bird Lore," in the February issue: "There can be no doubt that suppression of roadside regulation is a potent factor in restricting the numbers of birds. Farmers may gain a planting row about every field by the destruction of vegetation along fences, but they lose the services of the birds, their best allies in fighting insects."

It is true the roadside shrubbery provides splendid resting havens for many of our summer birds. True we cannot allow vegetation to grow uncontrolled in a helter-skelter tangled mass. There should be some arrangement to it. The motorist wants unobstructed approaches to curves and bridges to avoid accident, and our enthusiasm for the beauty in nature and the dollars in honey plants must take this fact in consideration.

Wisconsin.

## NOTES FROM ENGLAND

By Briggs Smith

On page 21 of your valuable Journal J. W. Cockle enquires about bumblebees. I tried my hand at them last year and my observations may interest him.

I had no success with them "in captivity"—they refused to be captive and happy at the same time. Only the queens matter; the others die off at the approach of winter, in any case. Once having located the nest it is necessary to remove it entire, with about a 9-inch cube of turf and earth. This cube can then be transferred to a site where it will be dry and fairly sheltered during the winter, such as the side of a bank, and "replanted" in a hole previously made to receive it. Bumblebees usually nest and hibernate in crannies in the earth, so it probably follows that your correspondent would help them by providing mounds of crumbly, turfy soil, where they could find the cracks they need without going further afield. In short, I think it better and easier to give them what they naturally seek, rather than try to devise some new and unnatural method of wintering them.

The British Standard Frame seems to amuse a good many of your readers, most of them finally denouncing it as "a toy." Well, so it is. But you should remember that beekeeping in this country is almost always run as a game. I should think you could count the number of men making a living solely from keeping bees on your fingers. Manley, Simmins, S. H. Smith and a few others, are doing all they can towards getting beekeeping made into an industry—but the average man goes on tinkering with his hobby, finding the British frame quite big enough, because he has such "dud" queens. Inside a five-mile radius of here—rolling miles of heather—there are plenty of bees, but the majority are in skeps and plenty of the owners still smother the bees for the so-called honey. We have no bee rights and no one can compel the owner of a hive smitten with Isle of Wight disease to make any attempt to localize the trouble. Last season I persuaded a local enthusiast to try Italians, and am now praying that all may go well with them, for if they fail, Italians will be dammned in this district for at least a generation. One result, I suspect, of the presence of my own goldens, was the display, by a man who should know better, of a nice empty hive smeared with syrup!

In spite of these drawbacks, I believe that commercial beekeeping in this country is making headway. Some of our dealers quote American-sized goods and there seems to be a growing demand for better bees—two good signs. But a considerable number of people still regard the skeps as part of the household and the practice of "telling the bees" of any important family event is dying hard.

Perhaps what we lose from a business standpoint we gain in romance.

In conclusion, I feel it must be stated that I myself keep bees as a hobby—and on British Standard Frames.

England.

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## ENGLISH HIVES AGAIN

By D. Roberts

"The British stick resolutely to their 14x8½ standard" (frame), says John Protheroe, on page 23 of your January number.

I should like to add a "Hear! Hear!" to R. B. Manley's article, "English Hives," on page 11 of the same number, wherein he urges that "we (the British) want bigger frames." One proof of this last statement is that bigger frames **are** coming increasingly into use on this side of the water. Standard American equipment, in particular, is steadily making headway in popularity among the bigger, progressive beemen, and it is only the rank and file—those lacking initiative—who "stick resolutely to their 14x8½," for the reason that it happens to be in general use. To change the size of equipment, even when the apiarist wishes to do so, is costly, and therefore very slow in taking place; but almost every beekeeper I have met, who keeps good queens and really goes in for serious honey production, and who has tried the 14x8½ frames alongside a larger frame, tells me that the larger frame is **undoubtedly** superior in every way for getting honey. The common practice here is to limit the queen to 10 only of these small frames, and then to winter the stock on this number, also! My own bees winter well in American pattern, single-walled, plinthless hives, in spite of all the local beekeepers shaking their heads at the idea, and come out much stronger in the spring than those in the smaller British hives.

England.

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## BEES ON FARMS

By L. H. Cobb

I have written a number of articles advocating the keeping of bees on farms. Sometimes when I have seen colonies that were kept on farms I have wondered if it was wise to advise farmers to keep them, but still I think that it is. If there are many bees kept in the locality by regular beekeepers, it is not so important that the farmer shall keep colonies also, but there are many places where there are not enough bees kept to pollenize fruits and seed-bearing crops, to say nothing of gathering the supply of nectar that should be utilized. I can see no reason why farmers should not keep bees and secure the benefits to be derived from them. The only trouble is that they are apt to give their bees no care, and this alone causes one to hesitate about urging farm beekeeping.

Bees neglected give little if any surplus, and are a real menace to other beekeepeers. Bee diseases and the bee-moth both thrive in the old neglected colonies too often, and from them are spread to the hives of the beekeepers who do take care of their bees, making them serious trouble and causing heavy losses sometimes. Another thing about farm apiaries is the tendency to use anything that comes handy to keep their bees in, and thus they cannot be inspected and kept free of disease, even if the farmer wished to do so. This evil can be overcome by laws making it compulsory to keep bees in hives with movable frames and have state inspection done thoroughly.

The large crop of nectar now going to waste all over the country should be saved. Fruits and such crops as alfalfa should be pollenized thoroughly. Neither of these things will be accomplished if the farmer does not keep bees, where no professional beekeeper is located within a mile or two. Even when bees are not far away, bad weather is likely to interfere with their flying, and the blooming period pass without the bloom having been visited by bees to any great extent. Where bees are close or in the orchard they will seldom fail to visit the bloom. Bees go considerable distances, but I would not want to risk a crop where bees were not kept within a mile of the plants to be pollenized. It would be all right if the weather was fine during the period of bloom, but with many fruits this is very short, and the season is apt to be stormy.

Farmers can take an interest in their bees and make them pay as well as any department. One of the best plans is to turn the apiary over to a young member of the family and let the profits from the bees go to the young beekeeper. The benefit to be derived from the bees outside the honey will well pay for the cost of starting the apiary, and the young beekeeper can keep it up and make money too.

Kansas.

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## GEMS FROM THE PAST

Selected by C. W. Aeppler

The wintering of bees, no matter by what method, is the masterpiece of beekeeping. It stamps a beekeeper either as an expert or as a blunderer. —J. M. Ehrenfels, 1767-1843.

In beekeeping, most people imitate the methods of others.—Lucas, 1802.

The handling of bees awakens in everyone admiration for the works of the Creator and the wonders of nature, and anyone who finds pleasure in the work of nature, certainly cannot be a bad person.—Dzierzon, 1811-1906.

All the moths on earth could not harm a strong colony of bees.—Dennler, 1849.

It is always worth while to handle bees with common sense.—Czaplovics, 1815.

No farmer mistreats his stock as much as he does his bees.—Eyrich, 1768.

In beekeeping, the surest way to obtain correct answers is to study the behavior of bees, and receive the answers from bees themselves.—W. C. L. Mussehl, 1837.

### MORE ABOUT CHINESE BEES

From a personal letter to Dr. Albert W. Rankin.

Amoy, China, Nov. 10, 1921.

Dear Professor Rankin:

We were much interested in your letter of September 15, about bees, because we have been trying to do something with Chinese bees for the last three years. The description which you enclose from the Bee Journal, however, does not apply to the bees which we have here. These bees are dark, poor honey gatherers, and not gentle. The latter characteristic may be on account of the climate, since it often gets so hot here that the combs get soft and fall down. The honey produced is also very inferior to home honey, being much darker and having a strong, somewhat unpleasant flavor. In short, we gave it up as a bad proposition, both because the locality did not seem to be favorable and also because it is so hard to get tools and supplies here. There does not seem to be a single place in China where these are sold, and Chinese themselves use the most primitive and unsanitary methods imaginable. Just how much of the undesirable features of the local bees and their honey is due to improper methods of breeding and care would be hard to say, but I am convinced that in any event they are much inferior to the regular home bees, Caucasians, I suppose.

One or two of the other features mentioned about the Peking, China, bees are true of the local ones. They make no propolis, as far as we have been able to discover; but neither do they fill all holes and cracks and varnish the interior of the hives. The brood frames were only occasionally stuck in and then only with wax. The wax, however, is not the white, clean variety described by the Peking correspondent, but almost brown—deep yellow, at any rate. The new wax, of course, is whiter, but the old wax gets dark very soon, and is only partly chewed away in winter. Bees are out nearly every day here, at least a few of them are, almost the year around. They swarm over and over from April to June, and will split into swarms of about a cupful of bees toward the end, if left to their own devices. Giving them a big home hive, so large they could not nearly fill it with brood did not seem to make any difference. That again, no doubt, is a result very largely of the heat, which is said to be at least partly the cause of swarming. Too many bees in one hive make it too hot. I take it you would not care for the local bees. I forgot to mention that they build no end of burr and brace combs, and it is almost impossible to make them build straight without full frames of starter.

T. J. Weersing.

### HOUSE APIARIES

A correspondent from New England asks for information in regard to the house apiary. We have mentioned house apiaries at different times in the American Bee Journal. In September, 1914, we gave the picture of a Swiss house apiary, which was probably the best arranged of any that we ever saw. But this apiary was conducted on the Berlepsch system, hives fastened, or rather built, into the wall, opening in the rear only, like so many cupboards, and with room for only one super. In such an apiary, a man can place 50 or 100 hives with little difficulty. But we have no beekeepers who would be satisfied with having the bees and the beekeeper so cramped for room. We want to be able to put two or more supers on such hives as need them and we want our hives to open from the top.

The Swiss beekeepers, of German Switzerland, claim two great advantages for the house apiary. The first is that it takes but little room. The house apiary in question had a wing which was occupied as an extracting and honey storing room. The second advantage which they claim is the possibility of working at the bees in bad weather, when one could not work with them in the open air, and with no danger of robbers.

In March, 1915, we showed an Italian house apiary. . In April, 1918, we showed a Swedish one. It is especially in Europe that you will find such apiaries.

In the American Bee Journal for March, 1917, we showed the apiary of Mr. F. J. Strittmatter, of Pennsylvania, which is perhaps the only practical house apiary that we ever found. It is a regular barn-looking structure, and the hives are only in single tiers in each story, enabling the beekeeper to work and also to use as many supers on each hive as he sees fit. Were it not for the great expenditure that


# DON'T BE CONFUSED

In buying a larger hive than the ten-frame Langstroth hive. Quinby invented an eight-frame hive with frames about 11¼ inches deep. It was long ago found inadequate in size and was made into a ten-frame hive, a size we have offered for some years.

Charles Dadant found the ten-frame Quinby depth hive needed another frame. He also found it a beekeeping necessity to change this hive further, and evolved the 1½-inch spacing from center to center of the frames. This is the real principle to be considered.

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January 25, 1921

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Hamilton, Illinois

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Yours sincerely,
F. DUNDAS TODD.

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such a house apiary involves, we would call it the very best apiary. If you have decided upon having such an apiary we believe it will be better to build something similar to this rather than the narrow, crowded, house apiries in several stories used on the European continent.

There are advantages in a house apiary which cannot be found in the open air apiary. The hives, not being exposed to the weather, will last as long as the owner. The wintering question is also less problematic, since the hives are very fairly protected from the weather. A shed, open in front in summer and closed in winter, would also prove quite satisfactory.

### WATER IN CELLS

P. C. Chadwick's observations on bees storing water in comb and evaporating it to reduce the hive temperature are in line with what I have observed here in central Kansas. On hot, dry days in midsummer when there was a dearth of nectar I have seen brood combs of young larvae with a tiny drop of water at the entrance of each cell, hanging from the edge of the upper cell wall. In size these drops varied from half the size of a match head down to nothing. In addition to maintaining a certain temperature I believe the humidity must be kept up to a certain point to prevent the young larvae from drying up.

In regard to the size of the entrance I am using both ⅜ and ⅞. I have never made any definite observations but am a believer in plenty of air and often 'staggering" the supers.

From the editor's note it would seem that the storing of water for evaporating purpose was new to the beekeepers of the east. It is also a fact that much of the writings in the text books coming from the clover belt do not fit in with conditions in the alfalfa region. This is particularly true of swarm control and queen rearing.

A. V. Small, Kansas.

(Although we know that bees need water to rear brood, we have never seen it stored. Neither did Mr. Langstroth, for he quoted Berlepsch who wrote: "The Creator has given the bee the instinct to store up honey and pollen, which are not always to be procured, but not water, which is always accessible in her native regions." We are quite willing, however to listen to statements and to change our minds if water storage proves to be common among bees. —Editor.)

### YOUNG QUEENS

By F. Dundas Todd

A good beekeeper told me this. Two years ago, which with him was a poor season, he bought a dozen queens from a breeder, and as they did not show up well, he made some plain remarks to the seller. But the said queen breeder retorted this: In many ways a young queen is like a cow; her status is determined largely by her first round of laying. If you milk a cow to the limit at the start, you will get a full limit cow in milk production, but if you milk her to only half her limit, she will be a half-limit cow. So with a young queen, unless you force her to her limit the first period of laying, she will never be any better than that first round. Therefore, when you get a young queen, see that she has enough bees to cover ten combs, and make sure there is enough food to keep her laying to her limit for three weeks, and if there is not, feed steadily. and he pointed out that in nature swarms usually occur during a honey flow, that when the young queen starts laying there is an abundance of bees in the hive and usually reserve stores.

Well, that was some jolt; the kind that makes a man sit up and take notice; therefore, the beekeeper said he thought it was worth the price of a dozen queens to have it handed to him, and that next season he would act on the advice, whether true or not, as he realized it was good beekeeping anyhow.

British Columbia.

(The editor doubts whether this comparison is correct, and will be glad to hear from queen breeders on this point.)

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### INNER COVERS AGAIN

By Allen Latham

On page 63 John Protheroe has given something about inner covers, and a good word about double top-bars. Has he not, in the case of the inner cover, "strained at a gnat and swallowed a camel?" To me it is amusing to read his criticism of the slats on the inner cover, seeing that I make all my inner covers with these slats on both sides.

It is well here to state that I make all my supers, bodies, etc., with the bee-space at the bottom. This inner cover can therefore be used either side up, which thing cannot be done with the usual hive, as there would be a double bee-space between frames and cover, or between sections and cover. It is a great advantage to have an inner cover which is reversible, and the double slatting stops the warping which puts so many of the covers sent out by the supply houses so quickly out of commission.

Let us get back to the swallowing act, however. Why does Mr. Protheroe allow himself to be troubled by those slats and put up contentedly with condensed moisture on his covers? Why, incidentally, does he tolerate hives tipped forward almost to the point of falling on their faces just so that the moisture will flow along the inner surface of the cover safely over the bees, to run down and form lumps of ice about the entrance? Possibly in Virginia the freezing of the running moisture would not occur at the entrance, and thus we must let Mr. Protheroe off this time. I would say most emphatically to all beekeepers who live far north of Virginia that they are giving their bees a serious handicap if they are counting on making arrangements for water to condense on the cover of the hives, from there to run down the front wall. Need I go into details here? Are not the imaginations of my readers equal to the task of seeing what I see? I will paint just one picture: Behold a hive entrance festooned with ice and frost, ice beautiful in its lumpiness and hoariness in early February; then behold a mild winter day that quickly follows a still, cold night; then behold the bees mincingly picking their way in and out among the ice lumps.

If moisture is to be tolerated at all in the hives it should never be tolerated on the covers. If colonies are not packed to the extent of doing away without any moisture in the hives they should at least be spared from the evils of moisture on the cover. A beekeeper who does not know the value of a cushion of warm material above the frames needs to study his business. Personally I value this cushion so much that I use it the year round. In winter the cushion prevents the accumulation of moisture above the cluster and in summer serves the same purpose to a large extent, as does a shade-board. When furnished a good warm cushion a colony will, before winter has become far advanced, have pushed its cluster up to the inner cover. Here the bees will find easy access to nearly every comb in the hive and will be within reach of most of the stores. It will be seen that here we find the bees with all the advantages of the double top-bar.

It will, in my opinion, be a long time before any satisfactory substitute is found for wood as an inner cover. Almost any substance which would otherwise be satisfactory is liable to be fibrous, with the result that the bees mutilate it seriously within a year or so. Waxing or coating the surface helps greatly, and an inner cover made of Upson board or similar wall board is very light and attractive. Varnishing this first and then coating it with paraffin will protect it a long time. Both sides must be treated or it will warp all out of shape. Even with its advantages, I lay aside this wall board for thin wood, when I can get the wood.

In a locality where there is little bee-glue and where the bee-moth is not a pest, I can see how mats could be used to advantage. With me the mats soon get lumpy with bee-glue, and after a short time do not fit down well upon the frames. When the supers are used the mat is unfit, especially above sections. During the winter the inequalities above the top-bars make a fine refuge for the bee-moth larvæ. They can winter here and come out in full force each spring. Freezing kills the bee-moth in all its stages of development. It is a good plan to make old Winter help to keep down this pest. The longer I keep bees the stronger becomes my conviction that it is desirable to allow the bees to have access to every part of their hive, so that there be no lurking place for the bee-moth. Mats are a regular nuisance.


### QUINN'S QUEENS OF QUALITY

Have no superior. "There's a reason." Are Mendelian bred, good qualities accentuated. Gray Caucasions, gray Carniolans, most gentle of all, prolific, hardy, vigorous, disease-resisting, white comb builders —they deliver the goods.

CHAS. W. QUINN,
Powhatan, Va.



# BEE SUPPLIES

Send us your orders for honey containers NOW.
Special Prices on

TIN AN GLASS HONEY CONTAINERS

| | |
|---|---|
| 2½-lb. Cans, per 100 | $ 4.25 |
| 5-lb. Pails, per 100 | 7.00 |
| 10-lb. Pails, per 100 | 10.50 |
| 60-lb. square Cans, per case of two | 1.25 |
| 2½-lb. Cans, per case of 24 | 1.25 |
| 5-lb. Pails, per case of 12 | 1.10 |
| 10-lb. Pails, per case of 6 | .90 |

GLASS JARS

| | |
|---|---|
| 8-oz. honey capacity, per case of 24 | 1.15 |
| 16-oz. honey capacity, per case of 24 | 1.35 |
| 32-oz. honey capacity, per case of 12 | 1.20 |

Write for prices on large quantities, stating number and sizes wanted.

Send us a list of your requirements of BEE SUPPLIES, and we will quote you prices that are right.

**A. H. RUSCH & SON CO.**
REEDSVILLE, WIS.


### The Miller Fund. A Suggestion

I have a suggestion to make regarding the Miller Fund. I will be one of fifty beekeepers to set aside one colony and give all that that colony will make during the season towards the Miller Fund. I believe I can get $50 of comb honey if it is a good year.

J. Kennedy,
Lawrence, Kansas, April 17.

That is a good suggestion and the Dadants will be the second party to the agreement. Can we get 48 more?

### Bees As Jewels

"A golden bee, mounted as a necktie pin, constitutes a jewel which the greatest snobs would not refuse to wear. It would not have been cast aside by General Niox who had gathered in the Army Museum, at Paris, the most rare and glorious bits, among others the golden bees of the imperial cloak of Napoleon. Those bees were from the treasure found in the tomb of Childeric I, father of Clovis, and donated to Louis XIV. They numbered some 300; some of them very delicate, with ruby eyes, chiseled by Byzantine artists, were selected for the royal cloak; others more coarse, made by apprentices, were reserved for the harness."—(L'Abeille & Sa Culture, February, 1922).

## QUEENS

Select three-banded Italians that will please. Our bees are unexcelled for gentleness, disease-resisting qualities, and honey production. Pure mating and satisfaction guaranteed.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.25 | $ 7.00 | $13.00 |
| Select Untested | 1.50 | 8.00 | 14.00 |
| Tested | 2.50 | 13.00 | 25.00 |
| Select Tested | 3.00 | 16.00 | 30.00 |

Select Tested Breeders, $5.00.

Day-old Queens, 40 cents each.

Queens ready to ship by return mail. Queens' wings clipped free of charge. Write for descriptive circular and prices per 100.

**HARDIN S. FOSTER, Columbia, Tenn.**

## Mott's Northern Bred Italian Queens

Selected queens only, this season, so do not confuse price with others which are not for SELECTED queens.

Select untested, $1.50 each, $15 per dozen. Select, guaranteed pure mated, or replace free, $1.75 each, $18 per dozen. Select tested, $2.50 each. Virgin (not mated), 75c each, $8 per dozen. After June 1, 10 per cent off to Canadian trade, to help out on exchange.

Plans, "How to Introduce Queens" and "Increase," 25c.

**E. E. MOTT, Glenwood, Mich**

## THE FAMOUS TEXAS QUEENS

The FAMOUS TEXAS QUEENS can now be had again at prices that are in the bounds of reason. No need of you paying high prices.

My Texas Queens are well known over the world.

Untested queens $1 each, $11 dozen.
Tested queens $1.25 each, $14 dozen.

**GRANT ANDERSON, Waco, Tex.**
Route 2.

## QUEENS

**Our Old Reliable Three-banded Italians are Honey Getters.** They are gentle, prolific and very resistant to foulbrood. Orders booked for one-fourth cash. Safe arrival guaranteed. Circular free. Prices April 1 to July 1:

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $5.50 | $10.00 |
| Select Unt. | 1.25 | 6.50 | 12.50 |
| Tested | 2.25 | 12.50 | 24.00 |

Select Tested, $3.00 each.

See our ad in January Journal.

**JOHN G. MILLER**
**723 C St., Corpus Christi, Texas.**

## New Jersey Queens

These queens are equal to those produced anywhere, and are the daughters of a breeding queen bought in 1921 of one of the oldest breeders of queens in the United States.

This queen was thoroughly tried out last season and her daughters are found to be

**HUSTLERS, GENTLE, PROLIFIC**

**MATED THREE-BAND**

**QUEENS**

1 untested ..... $1.25
6 untested ..... $7.00
12 untested ..... $13.00
Breeding Queens .. $10.00
Circular on request.

**Lewis "Beeware" and Dadant's Unexcelled Foundation.**

**J. F. GARRETSON**
**Bound Brook, N. J.**

## Heavy Laying Italian 75c Queens 75c

Bred for honey production. They are large, yellow and very prolific, and produce bees that are large, vigorous, disease-resistant, gentle, and the best for honey gathering.

I breed only the best, and guarantee perfect satisfaction; also safe delivery in U. S. and Canada.

Untested, 75c; tested, $1.50.

**ULIS BLALOCK, Christine, Tex.**

## Goldens the Best

14 years in business should give you best queens possible. Unt., $1 each, or 6 for $5; 25 or more, 75c each. Virgins, 40c each, or 3 for $1. Satisfaction and promptness is my motto.

**R. O. COX, Rutledge, Ala.**

## QUEENS! QUEENS!

Large leather-colored, three-banded Italian queens; 10-year selection, bred from honey-gathering; gentle, hardy and long-lived. Price, select untested, 1, $1.25; 6, $6.50; 12, $12. After July 1: 1, $1; 6, $5. Tested $1.50 each. Write for price on large orders. Free booklet "How to transfer, Get Honey and Increase."

**J. M. GINGERICH, Kalona, Iowa.**


### YOUNG QUEENS

There has been, off and on, discussion in the American Bee Journal concerning the age limit at which a queen is no longer profitable. There seem to be divergent views concerning this matter that surely is of great importance to every progressive apiarist. There is no doubt that this differs with different individual queens, just as human beings differ in their characteristics in life. Probably there is no rule that can be laid down by which beekeepers may regulate this matter. Some authorities seem to think that queens are better the second year than they were the first, and some think that they are as good the third year as the second. However that may be, I have been making observations that have some value, I believe, or at least are worth considering. I live in North Central Iowa and we are in the midst of a honey flow from heartsease. After a very dry summer, which killed all the clover by the first of July, rains came on, and there is a great deal of heartsease. During the last week of August the bees began to store honey. A friend of mine and I went out to find what it was and discovered that they were working hard on these plants and scarcely on any other kind of blossom.

From the last of June to the middle of July my bees got a sort of epidemic in superseding their queens. Some swarmed at this time, and the old queen was lost, and therefore both the old swarm and the new raised a young queen. These queens hatched and were fertilized in due time without the loss of one, and when this honey flow from heartsease came on they were the best workers. I have observed that those swarms, almost all are working with a briskness and a will, and with a force of bees far ahead of any others. The other colonies are full of bees, two supers high, and yet they are not working with half the force, and some, with not one-fourth the force, that the swarms with the young queens are. Those colonies with the young queens start out after honey early in the morning with a force that reminds one of a hive just beginning to swarm. There is some reason for this, and I am wondering if the psychological moment, as far as this fall honey flow is concerned, was the moment when the swarms superseded their queens. Many of these swarms, working so vigorously, have not so many bees as some of the old ones, and they are all practically filled, two hives high, with honey nearly all capped over. There is plenty of room in every hive, for I have extra supers on all. My own judgment is that this time referred to above is a good one to clean up all old queens, and the bees will be ready for a fall flow and will have their hives well filled with fine young bees for the winter. Iowa.


**A NEW BEE BOOK**

**"Dadant's System of Beekeeping"**

Send for a copy today.

Price $1.00.

# Big Reductions on Bee Supplies

Shipping cases, $30 per 100.
Slotted section holders, $3 per 100.
Sections, 1⅞, No. 1, $10 per 1,000.
Job lots of frames, regular size, $3 per 100.
Standard Hoffman frames, 9⅛ in. deep, $4.50 per 100.
Unspaced wedged top-bar frames, 9⅛ in. deep, $2.75 per 100.

SEND FOR CATALOG AND PRICE LIST

**CHARLES MONDENG**

**146 Newton Ave. N. and 159 Cedar Lake Road**

**MINNEAPOLIS, MINN.**

# A BIG HONEY CROP

Have you learned the secret of a bumper honey crop?. If you will head your colonies with young, prolific queens your yields will surely be greater.

Buy your queens from L. L. Forehand. They have been on the market for over twenty years THEY ARE BRED FROM IMPORTED MOTHERS. They cannot be beaten for honey gathering, gentleness, prolificness, disease-resisting, and non-swarming.

**GUARANTEE**

I guarantee every queen will reach you alive, to be in good condition; that she will be purely mated, and to give perfect satisfaction. I will return your money or replace queens that are not satisfactory in every way.

Safe delivery in U. S. and Canada only.

| | 1 | 6 | 12 | 100 |
|---|---|---|---|---|
| Untested | $1.25 | $ 6.50 | $11.50 | $ .90 |
| Select untested | 1.50 | 7.50 | 13.50 | 1.00 |
| Tested | 2.00 | 10.00 | 18.50 | 1.50 |
| Select tested | 2.75 | 15.00 | 27.00 | 2.15 |

Send for circular. It contains useful information.

**L. L. FOREHAND, Ft. Deposit, Ala.**

## THE SEASON IS HERE

And with it the Darrow's QUEENS and golden opportunities. Don't miss them.

You don't have to buy queens from an inexperienced breeder. "Darrow's Select Italian Queens" have been giving satisfaction since 1903.

**Prompt Shipment; No Disease**

I wish to announce that my 1922 prices are as low as can be and maintain the quality of my queens.

I guarantee perfect mates and only list untested three-banded, with an exception of a limited quantity of the lighter breeds.

Single queens, $1.25; 4 or more, $1.15 each; 10 or more, $1 each. Write for folder.

I will guarantee safe arrival and absolute satisfaction.

**WILLIE H. DARROW**
**Route No. 1, Milo, Mo.**

## CARNIOLANS

are very gentle, very prolifi , w nderful honey gatherers, build exceedingly white combs, little inclined to rob, resist brood diseases equal to any race of bees, and will swarm no more than Italians if properly managed. *Ask for free circular describing their merits more fully, best methods of management, prices of queens, etc.*

**A. G. HANN, Glen Gardner, N. J.**

## Hardy Italian Queens

Untested queens during May and June at $1.50 each; after July 1, $1 each, and prices on large orders. We guarantee safe arrival of all queens.

**O. E. TIMM, Prop.**
**Bennington, Nebraska.**


### A Good Bee Tree

Bolivar, New York, claims the record bee tree. It was a big basswood 40 feet in height and 3 feet in diameter. It was hollow for a space of 15 feet and contained 375 pounds of honey. As a rule, the amount of honey from a bee tree is much smaller than is expected. The writer once saw one cut where the land owner provided a wash tub and several dishpans to hold the honey. It was a great disappointment. There was none, and but few bees on old black comb in a small cavity.

### California Honey

The San Francisco Chamber of Commerce estimates the California honey crop at 2,500 cars. The press agent must have got his wires crossed somewhere, for in the same press sheet he estimates that California's contribution is ten million pounds. If our figures are correct some of the cars must be loaded rather below the minimum.

However, it is well known that California probably produces more honey than any other single State, and a large part of it goes into the eastern markets.

### Milk Dealers' Federation

The fifth annual meeting of the National Milk Producers' Federation was recently held at Cincinnati. It is a delegate affair which has the interests of the milk producers at heart through the 24 regional memberships.

An annual budget was introduced and efforts were also made towards legislation against "filled milks" which are for the main part some canned milks in which the fat content has been removed and replaced by vegetable fat.

The association is an example of what can be done by co-operative effort.

### ABOUT HONEY PRICES

By L. S. Heywood

I have read the very interesting and exceedingly well written article in your March issue of the American Bee Journal by Mr. E. G. LeStourgeon, which sets forth the exact marketing situation of the honey producer as it exists today.

It seems to me that he has overlooked the vital point in the marketing of honey that confronts the honey producer; which is the placing of our honey before the masses of the consuming people at a price that they will be able to pay; the whole tenor of his article seems to take it for granted that the present "channels of trade' that have been developed through "years of experimentation," must continue to exist for all time and the middle men, so-called, be permitted to continue to line their pockets with a 300 per cent profit while the producer must lower his price until the consumer can and will pay the retail price.

Mr. LeStourgeon says 'the producer cannot arrive at a price for his

**AMERICAN FUR BREEDER** Monthly Magazine. Tells about breeding Foxes, Mink, Skunk and other fur animals. $1 a year. Sample copy 10c.
American Fur Breeder, Box 217, Eminence, N. Y.

**CLOVERLAND,** Upper Peninsula of Michigan, has thousands of acres of clover-laden, low-priced lands waiting for bee farmers. Experts agree there is no region as favorably adapted to bee farming. Alsike, June, red-top and other clovers grow abundantly as volunteer crop. For detailed information write: **The Upper Peninsula Development Bureau, Marquette, Michigan.**

**BENNETT'S 3-BAND ITALIAN QUEENS**

The busy kind, gentle, prolific and disease-resisting.
Untested, 1, $1.50; 12, $1.25 ea., 25 or more, $1 ea.
Tested, 1, $2.25; 12 or more, $2 ea.
Satisfaction guaranteed. Health certificate with each shipment. Can ship by the 15th of April if weather conditions are favorable.

**W. A. BENNETT APIARIES,**
**Box 216, Hattiesburg, Mississippi**

**Let us tell you about the California Gold Medal Queens,**
**The Queens with the Pedigree.**

Our hardy, immune, prolific strain of 3-banded leather colored Italians. Developed from the world's best strains by careful selection and tested under California conditions for five years, with excellent results. My specialty will be breeding stock and every queen produced will receive my personal care and inspection. Now receiving orders for the season of 1922, which will be filled in the order of their receipt. Write for catalog and prices.

**THE COLEMAN APIARIES,**
Geo. A. Coleman, Prop.,
2649 Russell, St., Berkeley, Calif.

**WESTERN BEEKEEPERS!**

We handle the finest line of bee supplies. Send for our 1922 price list. Our quotations will interest you.

**The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.**

**Bright Three-Band Queens and Nuclei**

Strong nuclei, 3-frame only, with select untested queen, $5.00.

Select untested queens, $1.00; 6 or more, 75c each.

Select tested queens, $2.00 each.

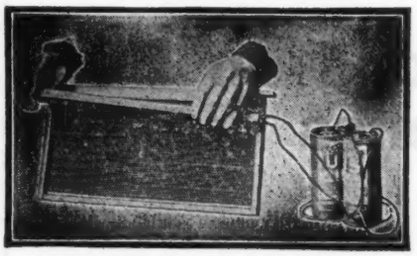
Select breeders in 1-frame nuclei, $8.00.

Fancy white tupelo honey at all times.

Write Apalachicola, Fla., until June 10.

**J. L. MORGAN, Gen. Mgr.**

**TUPELO HONEY CO., Columbia, Ala.**



**ELECTRIC IMBEDDER**

**Price without Batteries, $1.00**
Not Postpaid.
Weight 1 lb.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

**Dadant & Sons,** Manufacturers HAMILTON, ILL.

**Northwestern Headquarters for**

**Italian Queens**

Buy the best queens and increase your profits

Prices June 1 to October 1:

| | |
|---|---|
| 1 untested queen | $ 1.25 |
| 6 untested queens | 7.00 |
| 12 untested queens | 12.50 |
| 50 untested queens | 50.00 |
| 100 untested queens | 95.00 |
| 1 tested queen | 2.00 |
| 6 tested queens | 11.00 |

**J. D. HARRAH, Route 1**
**FREEWATER, OREGON**

**Michigan Bred Three-Band Italian Queens**

Untested:
July delivery, 1 to 9, $1.40 each; 10 to 100, $1.30 each.
August delivery, 1 to 9, $1.25 each; 10 to 100, $1.15 each.
Virgins, after June 1, 1 to 9, 60c each; 10 to 100, 55c each.
Select tested, after June 20, $2 each.
If you must have untested queens during June, send elsewhere, as my old customers have ordered my entire June output of untested queens.

**D. A. DAVIS, Birmingham, Mich.**

product by adding a certain per cent of profit to the price of production, since in the majority of cases he cannot tell what it costs to produce the material." He also states that all the others, the packer, the wholesaler and the retailer have arrived at a stabilized per cent of profit. It seems to me that the producer has had about as many years of this experimentation as any one concerned in the production and marketing of honey, and should have something to say about what price he should receive for his product, and in my opinion the majority of the honey producers today have a pretty clear idea what the cost of production is.

The time has come when the producer has to do some experimenting for himself; as we can see by the California Fruit Growers Association, the different wheat growers associations, the wool growers, and in fact in all lines of production, the spread in price between the producer and the consumer must be reduced; this must be accomplished through our local and National associations; and a price put on our product that the consumer can pay.

On the basis of Mr. LeStourgeon's article, a ten pound can of honey at 8 cents per pound to the producer plus 300 per cent would cost the consumer $3.20; now let me ask of what possible use will advertising be with honey at $3.20 per 10 pound can in competition with 75 cent karo or 90 cent molasses? I will admit that honey is not in the same class with Karo or any other cheap syrups; still we have to take those articles in consideration when setting a price on honey; as we must cultivate the consumption of honey by the masses of the people if we are ever to have a market that will absorb our product.

The problem before the honey producer today is to reduce the spread in price between the producer and the consumer; unless we can bring the producer and consumer nearer together in price, there is not much hope of any great increase in the consumption of honey. Mr. LeStourgeon seems to have overlooked this point entirely and assumes that we must go on trying to force forty cent honey down a fifteen cent throat. We must have middlemen in all lines of production and trade, but we don't need as many as we now have; they are entitled to a reasonable profit and must have it and every reasonable man will be willing they should, but we can't agree with Mr. LeStourgeon in the closing of his article where he infers that the producer has been the only one benefited by the channels of trade now existing, and as such beneficiary he must bear the greatest expense of the advertising to produce a market for this forty cent honey that he gets ten cents for, and if forty cent honey won't sell, then the producer must reduce his price until it will sell, while the middlemen with their "stabilized per cent" take their rakeoff just the same.

Utah.

### Another Method of Introduction

The novel way of introducing queens as given by Dr. Brunnich on page 69 of the February number of the American Bee Journal, recalls to my mind a method almost as novel, which I have been using three years with entire success.

In preparing bees for shipment in packages, about a pound of bees was left in the large distributing cage. These bees died of neglect and were left in the cage two or three days prior to the introduction of the first two queens as follows:

While requeening, two queens were found that were not so bad as some of the others, and were put in the large cage with the dead bees to be introduced about an hour later at the home yard. Not caring very much how it went, they were just dropped in and only a few puffs of smoke given. A few days later each queen was rendering good service.

The above served only as a working idea, for these colonies had been queenless for a considerable time, as a result of their rejecting cells. The idea has been worked on and tried out in several different ways since. All experiments have brought uniform results. The queens from among dead bees were accepted.

An old breeding queen disappeared and on examination a virgin was found which did not develop properly. After introducing several frames of eggs or very young larvæ all hopes were given up, the young queen killed, and in an hour a fine young queen introduced from a long distance queen mailing cage which was nearly full of dead bees. She was freed among the bees with very little smoke, and the behavior of the bees closely watched. They seemed to be repulsed by the dead scent and did not try to harm the new queen in any way. The next day, upon examination, she was found to be down to business. The same method has been tried under almost every condition, and has been found to work successfully in every instance.

A. R. Graham.

### Three Hundred Queen Cells

L. Th. Henry, in the Bulletin de la Societe Romande, giving an account of a visit among the Arabs of Kabylie, Algeria, mentions a colony which swarmed and in which they counted 300 queen cells on one single comb. The Punic bees were known to build many queen cells, but this is the largest number ever heard of, to our knowledge.

### Ford Buys Burroughs Home

The farm in the Catskills near Roxbury where John Burroughs was born, spent his boyhood, and where a year ago he was laid to rest, has been purchased by Henry Ford, long a vacation comrade of the naturalist. On Monday, April 3, the anniversary of the burial of Burroughs, the farm was dedicated to his memory. A bronze plaque was imbedded in the great rock over the grave of the author, and it has been planned to preserve the farm as nearly as possible as he knew it.—Publishers Weekly.


**PACKAGE BEES AND QUEENS**

We specialize on Three-band Italians Bred for Business.

Balance of the season we will furnish a 2-pound package of our hustlers with a select untested queen, for $4.75; 25 or more, $4.50 each. No queens, except with packages, before July 1. Prices after that date, from our best breeding queens:

Untested, $1.00 each; $10.00 per dozen; $75.00 per 100.

Tested, $1.50 each; $15.00 per dozen.

Only one grade of queens shipped—Select. Promptness and efficiency our motto.

**CANEY VALLEY APIARIES, Bay City, Texas**

J. D. YANCEY, Mgr.

**BEEKEEPERS** WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

**MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.**

**GOLDEN ITALIAN QUEENS**

| | Nov. 1 to July 1 | | | July 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 9.00 | $17.00 | $1 50 | $ 8.00 | $14.50 |
| Select Untested | 2.25 | 10.50 | 18.00 | 2.00 | 9.50 | 16.00 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 |
| Select Tested | 3.50 | 19.50 | 36.00 | 3.00 | 16.50 | 30.00 |

**BREEDERS $12.50 TO $25.00**

Queens for export will be carefully packed in long distance cages, but safe delivery is not guaranteed

NO NUCLEI, FULL COLONIES OR POUND PACKAGES

**BEN G. DAVIS, Spring Hill, Tenn.**

**BOOKED** to capacity on early May orders. Heavy discounts on introduced laying-enroute-to-you queens with frames, and pounds after May 25.

JES DALTON,
Bordelonville, La.

Will have Golden Italian Queens for delivery after May 25, untested $1.50 each; 12, $14.50; tested, $3; after July 15 untested $1.25.

**T. J. TALBOTT & BRO.**
409 Marx St., South Richmond, Va.

**THE BOOK YOU SHOULD BUY**

C. P. Dadant has recently revised and rewritten Langstroth's classic book on the Honeybee. The book now contains the best from three widely known writers on beekeeping, Langstroth, Charles Dadant and C. P. Dadant. The new edition has 448 large size pages and sells for $2.50.

**American Bee Journal, Hamilton, Ill.**

# BEES-QUEENS—June Prices

**FROM GEORGIA**

Queens—Untested 90c; Tested, $1.25. Bees—1 lb. $1.50; 2 lb. $3 00; 3 lb. $4.50 Nuclei—1 fr. $2.25; 2 fr. $3; 3 fr. $4.50

10% discount on lots of 10 or more Your satisfaction guaranteed. Send us a list of your supply needs

Disease-resisting. State inspection just made certifies our yards free from disease.

THREE-BANDED ITALIANS

## MICHIGAN HONEY PRODUCERS EXCHANGE, Inc.

**5495 Grand River Ave., Detroit, Mich.**

Our buyers who have received their first shipments have come back with orders for more of the same.

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**QUEENS**
**THREE-BAND ITALIANS**

# PACKAGE BEES

**QUEENS**
**SILVER GRAY CARNIOLANS**

Western headquarters for PACKAGE BEES and QUEENS. Orders booked with 25 per cent deposit, balance just before shipping. Deliveries start April 1. Safe arrival guaranteed of bees within 5 days of shipping point, queens anywhere in U. S. A. or Canada. Free circular for the asking.

| | | | | | |
|---|---|---|---|---|---|
| 1-pound package | $2.00 ea. | 10 or more $1.75 ea. | 1 untested queen | 1.25 ea. | 10 or more 1.20 ea. |
| 2-pound package | 3.50 ea. | 10 or more 3.00 ea. | 1 select untested | 1.50 ea. | 10 or more 1.40 ea. |
| 3-pound package | 5.00 ea. | 10 or more 4.50 ea. | 1 tested | 2.00 ea. | 10 or more 1.80 ea. |
| 1 select tested | 2.25 ea. | 10 or more 2.00 ea. | | | |

References by permission: First National Bank of San Jose; Security State Bank, San Jose
American Bee Journal, Hamilton, Ill.; Western Honey Bee, Los Angeles.

Write for prices in large lots. Breeders, extra selected and tested for breeding, $5.00

**J. E. WING** **155 Schiele Ave.** **SAN JOSE, CALIF.**

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# Notice to Beekeepers

I am offering to the trade 3-frame nuclei with a select untested queen at $5.50 each. These nuclei consist of Hoffman frames, new combs wired on full sheets of foundation. Bees are of the best strain of Italians; no black or hybrid bees to offer. Lots of 20 or more, write for prices. I guarantee safe arrival and furnish a health certificate with all shipments. After May 28 I offer these same nuclei at $4.75 each, and after June 25 at $4.00 each; from June 25 and on at $3.50 each.

I also offer queens for June delivery at $10 per dozen, or $1.00 each; large lots, write for prices

Also I will have for sale 500 to 600 colonies of bees, all in the very best of hives; will sell with or without location, which is the best in the South, both for honey, queen rearing and the package trade. If you are interested, write for prices, as they must be sold.

## A. B. MARCHANT, Jesup, Ga.

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# SCOTT QUEENS ARE GOOD QUEENS

MY QUEENS ARE GETTING RESULTS

among my hundreds of honey-producing colonies and for my customers. One writes: "Dear Mr. Scott: please book my order for one-half dozen queens. Those I received from you last season have made 150 lbs. comb honey so far this season. Yours truly." (Name on request.)

UNTESTED GOLDEN OR THREE-BANDED QUEENS

June 1 to July 15, one, $1.50; six, $8.00; dozen, $15.00
Pure mating, safe arrival and satisfaction. No disease. Card brings circular.

## ROSS B. SCOTT, LAGRANGE, IND.

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# SUPERIOR FOUNDATION

"BEST BY TEST"

Do not fail to secure our 1922 reduced prices on SUPERIOR FOUNDATION. State quantity desired. We also manufacture Hoffman frames, dovetailed beehives, etc. Quality unexcelled. Prices on request.

## SUPERIOR HONEY CO., Ogden, Utah

**(Manufacturers of Weed Process Foundation).**

**HONEY** We are in excellent position to serve beekeepers who do not produce enough honey to supply their trade We have a big stock of fine table honey of various grades always on hand.

**In 60-lb. Tins, Crystallized**

| | | | |
|---|---|---|---|
| Water white orange | 15c | Extra L. A. sage | 12 |
| White sage | 14c | Buckwheat | 10c |

GLASS AND TIN HONEY CONTAINERS

2½-lb. cans, 2 doz. reshipping cases---$1.45 case; crates of 100, $4.50
5-lb. pails (with handles), 1 doz. reshipping cases---$1.35 case; crates of 100, $7.00
10-lb. pails (with handles), ½ doz. reshipping cases---$1.10 case; crates of 50, $5.25
60-lb. tins, 2 per case, new, $1.20 case; used, 25c.

**White Flint Glass, with Gold Lacquered Wax Lined Caps**

8-oz. honey capacity---$1.50 per carton of 3 doz.
16-oz. honey capacity---$1.40 per carton of 2 doz.
Quart, 3-lb., honey capacity---$1.00 per carton of 1 doz.

**HOFFMAN & HAUCK, Inc., Woodhaven, New York**

# QUEENS FOR SALE—ROOT STOCK

We are now booking orders at the following prices: 00 per 100.

Untested, $1.00 each, $10.00 per doz., $70.

Tested, $1.50 each, $14 per doz.

Breeders, $5.00 each.

All orders filled promptly after June 15.

I wish to announce to the beekeepers of the southeastern states that I have taken over the A. I. Root Co. branch house and have everything the beekeeper needs, and all orders will be filled promptly from Savannah, Ga. Satisfaction and efficient service will be given all.

**A. R. IRISH, 126 Bay St., Savannah Ga.**

## First in Alabama to ask for and receive inspection for disease. All Apiaries found free from disease

**(Certificate signed, A. D. WORTHINGTON, Inspector).**

After twenty-six years of select breeding, we have a clean, bright, three-banded strain of Italian bees that are unsurpassed for their disease-resisting and honey-gathering qualities.

Select untested queens, $1.00 each; 12 or more, 90c each.

Select tested queens, $1.50 each; 12 or more, $1.40 each.

We guarantee our queens to give absolute satisfaction and to arrive in perfect condition. They have pleased thousands of others. Give them a chance to please you. They know how. Our little booklet free for the asking. It tells all about our bees and how to handle them for best results.

**M. C. BERRY & CO., Box 697 Montgomery, Ala., U. S. A.**

# The Master 8-Frame Power Extractor

Requires no attention from the operator, reverses the comb pockets automatically, cannot break combs, does not reverse at full speed, and is the easiest-running power extractor made. Reel made of rust-proof material.

**THE SIMPLEX 8-FRAME POWER EXTRACTOR**

Semi-automatic; no comb breakage; reverses by simply shifting lever in either direction; does not reverse at full speed; no brake; no slamming of comb pockets against the reel; entire reel made of rust-proof material.

## KUNKEL MFG. COMPANY, Los Angeles, Calif.

**Phone 11565.** **781 S. San Pedro St.**

If your dealer does not handle Kunkel Extractors, write to the above address. We will supply your needs. Write for Illustrated Catalog of Power and Hand-power Extractors.

# SUPERIOR ITALIAN QUEENS

We have 2,000 nuclei in operation and our production of queens should be over 100 queens per day, every one of which we will **Guarantee to be Satisfactory,** and we want to replace all that are not. We have been selling on that guarantee, and our replacements have been few; they must be giving satisfaction.

**To June 15th.**

Untested ----------One, $1.25; ten or more, $1.00
Tested ----------One, $2.00; ten or more, $1.75

**After June 15th.**

Untested ----------One, $1.00; ten or more, $ .75
Tested ----------One, $1.75; ten or more, $1.50

**THE STOVER APIARIES, MAYHEW, MISSISSIPPI**

# ARE YOU BUSY?

We presume you are, but we would like to detain you for just a few moments to tell you about our large, hardy, vigorous, 3-band Italian queens. They are just what you have long been looking for—THE BEST. One of our customers from Iowa writes that queen he received from us last year stands at the head of the list, and he has queens from nine breeders in five states. One from Minnesota states that queens we sent him in 1920 averaged 190 lbs. apiece. One from Nebraska states that he certainly likes the gentleness of our bees, and we have many other praises like these. We would like for you to try a few this season and see for yourself that they are everything we claim. We guarantee every queen to be purely mated, to reach you in perfect condition and to give what you think is satisfaction. Never have had any disease in our apiaries.

PRICES FOR JUNE

Untested .....$1.25; $13.50 per doz.; 25, $1.00 each
Select Untested .....$1.50; $16.20 per doz.; 25, $1.25 each
Select Tested .....$2.50; $27.00 per doz.; 25, $2.00 each
Capacity, 1,000 queens a month.

We thank you for your time and trust that you will act on our advice by placing your order to be filled by return mail, or soon thereafter.

**HERMAN McCONNELL, Robinson, Illinois**

**PROGRESSIVE BEEKEEPERS**
**Jobbers, Wholesalers and Conservative Beemen use**

# SOUTHLAND QUEENS

**Bred for Service**

**Guaranteed Satisfaction** **P-r-o-l-i-f-i-c, Hardy**

Coversdale, B. C., Canada.

I got the queens on the 18th. Only six (6) days on the way here. They came in first-class shape—not one dead bee in any of them. The queens were very fine. The best yet from a queen breeder.

I'll recommend you to the inspector and he will direct them to you when they want good queens.

(Name on request).

SPECIFY SOUTHLAND QUEENS.

**Box 585 THE SOUTHLAND APIARIES, Hattiesburg, Miss**

QUEENS **FOREHAND'S THREE BANDS** BEES

**One Queen for $1. They Satisfy. Why?**

Because they are guaranteed to be as good as money can buy. Not a cheap queen, but a first-class queen at a cheap price. Every queen guaranteed to reach destination in first-class condition, to be purely mated and give perfect satisfaction, or money back. Orders filled by return mail.

Untested, 1 to 25, $1.00 each; 25 to 50, 90c each; 50 to 100, 80c each.
Select Untested, 1 to 25, $1.25 each. Tested, $2.00 each, 12 for $20.00.
One pound bees with queen, $3.00; 2 pounds bees with queen, $5.50.

**N. FOREHAND, Ramer, Alabama**

**PRICES SMASHED. 85c EACH. UNTESTED QUEENS**

# MR. BEEKEEPER

If you want the best quality that is possible to produce, at the lowest price possible to produce, here is the place to order your queens. I positively guarantee THAT NO BETTER QUEENS CAN BE BOUGHT, NO MATTER WHERE YOU BUY THEM. These queens are very resistant to bee paralysis, also foulbrood. When you order a tested queen or a select untested from me I don't go out in the yard and cage the first thing I come to and send it to you, like 50 per cent of the queen breeders do. I send out what I advertise, and I stand behind every queen I ship. If they don't give you entire satisfaction, all you have to do is just return them at my expense and I will cheerfully refund your money. Order a few packages of bees and get those weak colonies of yours in shape for the honey flow. I am prepared to ship by return express. The price is right. A limited number of very fine selected tested queens that would make fine breeders, at 4$.00 each. Safe delivery and satisfaction positively guaranteed.

PRICES

| | 1 | 6 | 12 | 100 |
|---|---|---|---|---|
| Untested | $ 85 | $ 4.80 | $ 9.00 | $ 64.00 |
| Select untested | 1.00 | 5.70 | 10.80 | 85.00 |
| Tested | 2.00 | 10.50 | 19.60 | 150.00 |
| Select tested | 2.50 | 14.40 | 27.60 | 175.00 |

POUND PACKAGES WITH SELECT UNTESTED QUEENS

1-lb. packages....1 to 12, $2.35 each; 12 or more, $2.30 each 2-lb. packages....1 to 12, $3.85 each; 12 or more, $3.80 each

Shipment made by return express.

**THE FARMER APIARIES, Ramer, Alabama**

# QUEENS

**Nordan's Three-Banded Italian Queens and Bees. (Three-Banded only)**

## BEEKEEPERS

If you have one colony or five thousand, I want you to give my Superior Strain of Three-banded Italians a trial. I am fixing the price right so you can. I am not a new man come out. I have been in business almost all of my life, for honey production and improving my strain. I have selected and bred my strain from the finest mothers in my yards, which were selected for all the good qualities for over a quarter of a century. I have spared neither labor nor money in developing my strain, until now I can put queens and bees on the market which I know are surpassed by none; and I guaranteed that money cannot buy any better in the United States. When you introduce my queens, beekeepers, you can feel assured you have bees that cannot be surpassed by any in U. S. A., which are backed by over a quarter century of improving and selecting from the finest mothers and mated to colonies, drones that are selected. NOTICE! My strain is guaranteed immune to bee paralysis. We have found the foundation of bee paralysis is in the queen, and now, after years of selecting and testing, I guarantee my strain resistant to it. Bee paralysis is greatly over the South. I will gladly replace any bees I ship in which bee paralysis breaks out.

QUALITY AND SATISFACTION

Each and every queen I send out, if it is one or five thousand, is guaranteed to give absolute satisfaction to purchaser's own satisfaction; otherwise advise me and I will gladly send more to take their place. You run no risk; a record of over a quarter of a century of fair and honest dealings. You get your money's worth as nearly as possible, plus a very small profit, and my price is fixed to a very low profit.

All queens select. If they do not prove up pleasing to the eye, they are not shipped. I do not price a select and ship an untested. I give the greatest care to produce the finest queens possible.

PRICES ON QUEENS AND PACKAGES

| 1 | 6 | 12 | 100 |
|---|---|---|---|
| $ .85 | $4.80 | $ 9.00 | $64.00 |
| Tested | | | |
| $1.00 | $5.70 | $10.80 | $85.00 |

Packages

1-lb. package, with queen (full weight), 1 to 12, $2.35 each; 12 or more, $2.30.

2-lb. package, with queen, 1 to 12, $3.85; 12 or more, $3.80.

Can make shipment when you want them, of either queens or packages. I appreciate your business, large or small. Reference: Alabama Bank and Trust Co., Montgomery, Alabama.

**M. S. Nordan, Mathews, Alabama**

## Selected Queens of the Highest Quality

**1000 Full Colonies** **Queens by return mail.** **1000 Nuclei**

**Three-Banded Queens our Specialty**

Our queens produce bees that are wonderful honey gatherers, gentle and most resistant to all diseases. We guarantee every queen we ship to give entire satisfaction. We clip wings free of charge on request. Safe arrival and prompt delivery are also fully guaranteed. There may be other queens just as good, but we believe you will find few better. To know them, try them.

**HAYNEVILLE APIARY COMPANY, Hayneville, Alabama**

# Texas Made Combs

**When you buy Aluminum Honeycombs be sure that the frame is stamped like this**

**May-1-1917-Pat. No. 1224479**
**Factory A. I.**

THE ALUMINUM HONEYCOMB CO.
OF TEXAS
SAN ANTONIO, TEXAS

**When you see this stamp on the end bar or top bar of an Aluminum Comb it means**

1st. It is made in Texas under the MacDonald patent by the very latest improved machinery.

2nd. The cells are perfect worker size. Count the rows of cells in a Texas Made Aluminum Comb and in a full sheet of foundation.

3rd. The shallow depth of the cell permits a wax extension by the bees which protects the face of the comb and gives an Aluminum Comb the appearance and "feel" of a natural wax comb. These combs are readily accepted by the queen.

4th. The end bars of the frames are channelled out and the Aluminum Comb fitted into them making the Texas Made Aluminum Comb absolutely rigid.

5th. These combs are sold by your dealer under a positive guarantee. Write for descriptive folder giving the name of distributor near you.

## Last Objection Removed

Some had feared that bees would not winter well on Aluminum Combs. Reports from seventeen observers in as many different Northern States and Canadian Provinces show that bees wintered perfectly on Texas Made Aluminum Combs. Because queens could lay eggs in every cell these colonies built up faster than bees on wax combs.

**THE ALUMINUM HONEYCOMB COMPANY OF TEXAS**
**SAN ANTONIO, TEXAS**

# Crop and Market Report

Compiled by M. G. Dadant.

Since our report last month, there has been nothing new to report which would change conditions materially.

Later reports on wintering of bees shows that the losses were very light in practically all locations except some isolated points in the inter-mountain territory, where heavy freezes and later snows have the effect of increasing the mortality.

In general, bees came through in excellent shape and have built up very fast, most especially so in those regions favored with a heavy fruit acreage. The fruit bloom in the central West, especially, has been exceedingly favorable this year and bees have built up in great fashion. There has been some swarming on fruit bloom and those locations having black locust also have had to give added ventilation and to put supers on the hives to prevent swarming.

## EARLY CROPS

The early honey crop in Texas has been light and as the demand is strong there has been no difficulty in cleaning up such honey as has already been extracted.

Report from California also would seem to indicate that the yield from the deciduous fruit blossoms was light this year except in some few counties which were not hit by the freeze. The light flow is attributable not only to the earlier freeze, but also to disagreeable weather during the blooming period of the oranges and other fruits.

However, sages have come through in most excellent shape, owing to the many rains and the prospects for a crop in California are considered excellent.

The Southeast has had a very good honey crop so far, and practically all of the South reports conditions similar. In Louisiana they had a veritable flood of early nectar. Louisiana and Mississippi have suffered greatly on account of the extreme floods, especially such territories as are located near the Mississippi River or its tributaries.

All in all the prospects during the coming year are especially flattering, there being only a few localities in the whole country which sent in adverse reports. One of these is southern Wisconsin, which was hit hard by dry weather last year, so that most of the clover was burned out. Throughout the section of central and southern Illinois, southern Iowa and eastern Indiana, the conditions earlier seemed to indicate that there would not be much clover. However, the copious spring rains have somewhat changed this, and the prospects are now for a fair flow of clover honey in these localities, with better prospects in other parts of the state surrounding. Missouri, for the first time in several years, seems to be preparing for a good clover harvest. A report received today from northern Kentucky and another from Tennessee would indicate that the harvest there is most exceptional, and many supers already filled.

## HONEY ON HAND

As indicated in our last month's report, honey on hand is cleaning up fast and there seems to be no doubt but that the old honey will be pretty well cleaned up by the time the new crop comes in. This does not apply only to the producer, but also to the dealers in honey, who are fast cleaning up old stock and who are not loaded down as they were a year ago.

There still is some comb honey in the inter-mountain section which is not sold, but the producers do not seem to be worrying over it, and anticipate sale of this before the new crop is ready, since the new crop of inter-mountain alfalfa and sweet clover will not be ready to ship before early fall.

The light crop of orange and other early honeys is being disposed of rapidly and will not interfere to any extent with moving the balance of the old crop.

## FOREIGN PROSPECTS AND SHIPMENTS

Reports indicate that the crop of Porto Rico will be under the average for this season. Many shipments are still being made from the West Indies directly to Europe and at low prices. We have one report of a large shipment going to Holland at a price of 56c per gallon, which is a little less than 5c per pound f. o. b. West Indian shipping point.

Two or three commerce reports have given an idea of what the conditions of honey selling are in different European countries. These would seem to indicate that there would be very little demand for American honey in Spain, Belgium and possibly a little better demand in Italy and France. The main countries which would use American honey are England and Germany. One report covers pretty well the situation in Germany and we take the liberty of quoting herewith from this commerce report as follows:

> "Honey is considered as an essential foodstuff, and there are no restrictions forbidding the importation of this commodity. Generally speaking, California honey is considered the best quality obtainable on the German market. The most important improvement, which might be considered by American beekeepers, would be that of packing. California honey imported into Germany is usually packed in tin canisters, and two such canisters are boxed in a crate. This packing is similar to that resorted to by exporters of American oil to the Far East. This is, however, not the safest or most economical measure. Furthermore, complaints have been registered that on some occasions old oil canisters are used to contain honey. Naturally the odor and flavor is disagreeable, and by resorting to such practices, California honey received a bad name. It woud be more advisable for American honey exporters to use the packing methods of their South American and West Indian competitors, that is, whenever possible, rum or whisky barrels should be used, containing approximately 250 kilos (551 pounds). Such flavor is more desired by local consumers.
>
> "The packing and labeling of honey in small containers for German destination should not be done in America, as this increases the cost and also makes it more difficult to sell in the German market. The cost of labor and materials for packing purposes is considerably lower here."

## GENERAL PROSPECTS

All in all, conditions seem to be very favorable for an excellent crop this year throughout all of the country, in fact much more favorable than a year ago, inasmuch as bees are in better shape and have a better start through a favorable fruit bloom and through favorable bloom of other early plants. To offset the heavier supply indicated that might be expected from favorable conditions is the fact that the honey of the previous season is pretty well sold and that the big markets will be ready for the new crop by the time it is ready to harvest.

Business conditions in general are also very much improved over a year ago, so that there seems to be no indication that there should be any drop in prices of honey. All depends, not so much upon the production, as upon the methods of distribution. We still have accomplished very little in the efficient distribution of honey, and the beekeepers still do not seem to be awake to the fact that something must be done to get proper distribution so as to move the crop without difficulty.

Nearly all State Associations are putting out news letters giving information on how to handle colonies, how to take care of foulbrood, etc., but so far very little attention is being paid to the marketing of the crop.

# CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue: If intended for classified department it should be so stated when advertisement is sent.

## BEES AND QUEENS

Consumers say rich and fine. Atwater Honey.

BRIGHT 3-banded queens and nuclei. See cut prices in our ad. on page 276.
Tupelo Honey Co., Columbia, Ala.

PURE ITALIAN QUEENS, reared from the best honey-producing mothers; untested, $1.25; tested, $2.50.
H. N. Boley, Hillsboro, Ia.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
86 Dey St., New York City.

QUEENS—3-banded Italian; also goldens; the thrifty kind. Untested, 1, $1; 6, $5.50; 12, $10. Tested, 1, $2; 6, $11.50; 12, $22. Select tested,1, $3; 6, $12.50; 12, $24. Write for prices after July 1. No disease. Safe arrival and satisfaction guaranteed.
P. O. Watkins, Cullasaja, N. C.

PINARD'S QUALITY of Root's strain of bees and queens. Virgins, 50c. Untested queens, $1.25 each; larger lots, write. Circular free. After July 1, 10 per cent discount.
A. J. Pinard, 440 N. 6th St., San Jose, Calif.

BEES AND QUEENS at reduced prices. Cypress hives for sale. Write for terms.
Otto Diestel, Elza, Ga.

THREE-BANDED queens and bees, Dr. Miller's and my own stock; 3-frame nuclei and queen, $5.50; 1 lb. bees and queen, $2.75; 2 lbs. and queen $5; 3 lbs. and queen, $6.25. All good empties returned at my charges. Queens, $1.25 each, 6 for $7, 12 for $13, 24 and over at $1 each. Reared in the hubam black belt sweet clover section. Scotts Station, Ala., by Curd Walker, Queen Breeder.

FOR SALE—Golden Italian queens, untested, $1.15, 6 for $6.50, 12 or more $1 each. Tested, $2 each. Select tested, $3 each. After July 1, untested, $1, 6 for $5.40, 12 or more 80c each. Tested, $1.50; select tested, $2.50 each. No disease of any kind; bees ery gentle and good honey gatherers, D. T. Gaster,
Route 2, Randleman, N. C.

THREE-BANDED ITALIAN QUEENS—Untested, June, $1.15 each; six for $6.50. After July 15, $1 each; six for $5.50. No questionable methods, no queenless stunts, no swarm boxes, no dry grafting, no hatching into cages, no baby nuclei. I rely on supersedure conditions in big queenright colonies. Matings from strong 3-frame nuclei,
John Protheroe, Rustburg, Va.

WHAT THE BUYER HAS THE RIGHT TO EXPECT—A well-known authority on beekeeping generally says, on page 89 "Practical Queen Rearing," "When a man sends his money for a queen in response to an advertisement, he has the right to expect that no inferior queens be sent, even though he buy untested stock." I am doing my own work and believe that I can produce what the buyer has the right to expect. Prices for June, one untested, $1.25; 10, $11.50. In larger quantities write for prices. For later shipments I may make more attractive prices.
M. G. Ward, Lathrop, Calif.

YOUR ORDER for queens will be filled by return mail. Only one grade and that the best of 3-banded Italians. Untested, $1; $10 per doz. Tested, $1.25 each. No disease. Safe arrival and satisfaction guaranteed.
J. W. K. Shaw & Son,
Loreauville, La., Box 72.

WE SPECIALIZE on three-band Italians, bred for business. See ad. elsewhere for prices.
Caney Valley Apiaries,
J. D. Yancey, Mgr., Bay City, Texas.

HEAD YOUR COLONIES with Williams' Italian queens of quality and get more pleasure and profit from your bees. They produce bees that are gentle, hardy and hustling. Descriptive circular free. Select untested 75c each.
P. M. Williams, Ft. Deposit, Ala.

CALIFORNIA QUEENS—100 per cent perfect; large, vigorous Italians, guaranteed layers. They are making a hit, as proven by repeated orders and letters of appreciation. Am building a name and reputation; try at least one; you will surely want more then. Prices reduced. Select untested, 1, $1; 6, $5.; 25, 90c each.
H. Peterman, R. F. D., Lathrop, Calif.

CONNECTICUT QUEENS—Highest grade 3-banded Italians, ready June 1. Select untested, $1.25 each; 6, $6.50; 12, $12.00; 50, $47.50; 100, $90. Two lbs. bees with queen, $5.00; 3 lbs. with queen, $7.00. Two-frame nuclei with queen, $5.50; 3-frame with queen, $7.50. Select virgin queens (not culls), 50c each, $45.00 per 100. No disease, and satisfaction guaranteed.
A. E. Crandall, Berlin, Conn.

"SHE-SUITS-ME" Queens, line-bred Italians, $1.50 each; 10 to 24, $1.30 each; 25 to 49, $1.25 each; 50 to 99, $1.20 each; 100 queens, $115. See page 38 of January number.
Allen Latham, Norwichtown, Conn.

QUEENS—Three-band, special price for June and July. To decrease our nuclei through summer we will ship our pedigreed strain of honey-getting 3-band queens at $1 each.
Dr. White Bee Co., Sandia, Texas.

FOR SALE—Golden Italian queens; untested, $1.25; 12, $12. Safe arrival and satisfaction guaranteed. J. J. Sanford & Son,
Rt. 1, McKenzie, Ala.

FOR SALE—My 1922 Golden Italian queens, the hustling kind, second to none. Satisfaction guaranteed. Price, untested, $1 each, $10 per doz., or $80 per 100. Tested, $1.75 each. After June 15, 90c each, or $9 per doz.; $70 per 100. Tested, $1.50 each.
E. F. Day, Honoraville, Ala.

BURLESON'S three-banded Italian Queens. For balance of 1922, $1 each or $90 per 100. Safe arrival and satisfaction guaranteed. Send all orders, together with money, to my manager, J. W. Seay, Mathis, Texas.
T. W. Burleson, Waxahachie, Texas.

"FLORIDA FIRST" QUEENS—Untested, 1, $1.50; 5, $7. Tested, 1, $2.50; 5, $12. Selected three- banded. Circular free.
Indian River Apiaries, Wilson, Fla.

DEPENDABLE QUEENS—Golden or three-banded, after June 1: One, $1.50; six, $8; dozen, $15. Safe arrival and satisfaction guaranteed. Card brings circular.
Ross B. Scott, LaGrange, Ind.

DIEMER QUEENS—I make a specialty of good three-banded Italian queens at $1 each.
J. F. Diemer, Liberty, Mo.

HARDY Northern bred Italian queens. Select untested, $1.50.
F. L. Barber, Lowville, N. Y.

1903 DARROW'S QUEENS EXCEL 1922
Read ad. on page 275.

WHEN it's quality, service and satisfaction, you want to try Pinard.
A. J. Pinard, 440 N. 6th St., San Jose, Calif.

BEES AND QUEENS at reduced prices. Two-pound packages bees with untested queens, $3.65; 3-pound packages bees with untested queens, $4.55; 2-frame nuclei with untested queens, $3.80; 3-frame nuclei with untested queens, $4.70, in lots of 100 or more. For small lots add 10 per cent. Reference: Security Bank and Trust Co., Wharton, Texas.
W. H. Moses, Lane City, Texas.

QUEENS, QUEENS, from my old leather-back Italian queen. Ready to ship after April 15. She is the head of my apiaries. Untested, $1.25; tested, $2.50; select tested, $3.00. More than 12, prices on application. Guaranteed safe delivery. O. O. Wilder & Son.
Rt. 2, Box 14, Corpus Christi, Texas.

TRY ACHORD'S Package Bees and Queens. Price list by return mail.
W. D. Achord, Fitzpatrick, Ala.

WE BELIEVED in former years that we had the best Italian queens obtainable. "We still believe it." Mr. H. E. Crowther, Jefferson, Ohio, a large commercial honey producer, writes: "They are fine specimens, indeed, and very resistant to foulbrood." We are making the price this year in reach of all. Untested, $1, select untested $1.25, tested $2, select tested $2.50. We will sell virgins at 50c. We have breeders from Italy, and can furnish either from Americanized or imported stock.
F. M. Russell, Roxbury, Ohio.

SEE Thagard's back to Pre-War days prices on queens and bees elsewhere.

WE are now offering our bright Italian queens at $1 each, or 10 per cent less in dozen lots. Pure mating, safe arrival and reasonable satisfaction guaranteed in U. S. and Canada. Write for prices on package bees. We will have them in season.
Graydon Bros., Rt. 4, Greenville, Ala.

PACKAGE BEES, $1.50 per pound; untested Italian or Carniolan queens, $1.25 each. See larger Adv. Free circular. J. E. Wing,
155 Schiele Ave., San Jose, Calif.

GOLDEN QUEENS, GOLDEN—1922 price: untested, one, $1.25; doz., $12. Select untested, one, $1.50; doz., $15; tested, one, $2.50, doz., $27.50. Pure mating and safe arrival guaranteed in United States and Canada. Booking orders now.
Tillery Bros., Georgiana, Ala.

FOR SALE—Early package bees, nuclei and queens. Shipping season from March 1 to June 1. We handle 1,800 colonies. No disease. Loveitt Honey Co.,
602 N. 9th Ave., Phoenix, Ariz.

HARDY ITALIAN QUEENS, $1 each.
W. G. Lauver, Middletown, Pa.

TWO-POUND PACKAGES 3-banded Italian bees with queens, $4.75 each; 10 or more, $4.50 each; 25 or more, $4.25 each. Heavy discounts on packages after May 25.
J. J. Scott, Crowville, La.

FOR SALE—Golden Italian queens. untested, $1.15 each; 6, $6.50; 12 or more, $1 each; select untested, $1.60; 6 or more, $1.50 each. Safe arrival. Hazel V. Bonkemeyer,
R. D. 2, Randleman, N. C.

THREE-BANDED ITALIAN QUEENS—Select untested, $1 each, $9 per dozen; 1-lb. package with queen, $3; 2-lb. package with queen, $5. Safe arrival and satisfaction guaranteed.
W. T. Perdue & Sons, Rt. 1, Ft. Deposit, Ala.

QUEENS—We are prepared to furnish queens in quantities promptly. These queens are reared for us by the most reliable breeders. Write for prices.
Dadant & Sons, Hamilton, Illinois.

QUEENS AND PACKAGE BEES—Bright, 3-banded Italian. We are now booking orders for the season of 1922. Shipments of queens and package bees this year commenced on March 15. All queens are mated in standard full-sized nuclei. We operate four thousand full-sized nuclei. Capacity and output of queen yards this season, five thousand queens per month. We own, operate and run for extracted honey in the States of California and Nevada twelve thousand colonies of bees. All of our breeders are selected queens whose colonies led these twelve thousand colonies of bees last season. Better selection of breeders cannot be equaled or had anywhere. We have the capacity and output of queens and package bees to make shipments promptly as and when promised. We guarantee safe arrival of queens and package bees. Prices: Mated, untested queens, 1, $1.00; 6, $5.50; 12, $9.60; 13 to 99, 75c each; 100 or more, 70c each. Package bees: Write for special price. Terms, 10 per cent deposit on booking order, balance at time of shipment. See our large advertisement in this magazine. Western Bee Farms Corporation (Principal); Western Honey Corporation and Western Citrus Honey Corporation (Associated Corporations); Claus Spreckels Building, No. 703 Market St., San Francisco, Calif.

CAN FURNISH PROMPTLY 2-frame nuclei, with queen, $3.50; 3-frame nuclei, with queen, $4.50; 4-frame nuclei, with queen, $5.50.
Rosedale Apiaries,
J. B. Marshall & H. P. LeBlanc, Props.,
Route No. 2, Alexandria, La.

HIGH GRADE ITALIAN QUEENS a specialty. Order early. Prompt shipment. Laying, $1.50; tested, $2.50; day-old, with introduction guaranteed in the U. S., 75c.
James McKee, Riverside, Calif.

FOR SALE—Italian queens. Prices for untested, in June, $1.50 each, $8.25 for 6; $16 for 12. Tested, $2.50 each; from July 1 to October, untested $1.25 each, $7 for 6; $13.50 for 12; tested, $2 each. Virgins, 75c each. Mismated queens will be replaced if returned in 30 days. Dead queens will be replaced if returned to me by return mail.
R. B. Grout, Jamaica, Vt.

FOR SALE—Golden Italian queens; tested, $2.50; untested, $1.25. Queens ready June first. J. F. Michael,
Route 1, Winchester, Ind.

1903 DARROW'S QUEENS EXCEL 1922
Read display ad on page 275.

ITALIAN QUEENS—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, May and June: $1.50 each, 12 or more $1.25 each. Send for circular.
J. H. Haughey Co., Berrien Springs, Mich.

1500 NUCLEI for May and June. Simmons' queens ready now.
Fairmount Apiary, Livingston, N. Y.

SPICER'S 3-band Italian queens ready to mail May 20. If you are interested in improving your stock and getting larger returns from your bees, head your colonies with these queens. Untested, $1.25 each, 6, $7; 12, $13.50. Tested, $2.50 each.
Robert B. Spicer, Wharton, N. J.

FOR SALE—Leather colored Italian queens, tested, until June 1, $2.50; after, $2. Untested, $1.25; 12, $13. Root's goods at Root's prices.
A. W. Yates,
16 Chapman St., Hartford, Conn.

BOOK YOUR ORDERS for QUEENS now—Goldens, $2; tested, $3; banded, $1.50; tested $2.50; six or more, 10 per cent less.
Clover Leaf Apiaries, Wahoo, Neb.

BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere.
Nueces County Apiaries, Calallen, Texas,
E. B. Ault, Prop.

FOR SALE—400 stands clean bees, extracting equipment; good location; for reason write. The Oregon Apiary Co.,
Nyssa, Oregon.

"ACE-HIGH" three-banded Italians hustle. Bred from excellent stock. No effort or expense spared to produce quality. No disease. Prices reasonable. Send for descriptive circular *now*, before you forget.
A. G. Van Ronzelen,
Route 2, Box 212, San Antonio, Texas.

THREE-BANDED ITALIANS ONLY—Untested $1.25 each, $12 per dozen; tested queens $2 each, $20 per dozen. 2-frame nuclei, with untested quee. $4.50.
Jul. Buegeler, New Ulm, Texas.

UNSURPASSED ITALIAN QUEENS, ready June 1: Untested, 1, $1.25; 6, $7; 12, $12.50; 50, $50; 100, $95. Tested, 1, $2; 6, $11. Every queen is mated and laying before she is mailed.
J. D. Harrah, Freewater, Ore.

CARNIOLAN QUEENS—None better. Select tested, $2.50 each; select untested, $1.25 each. Also choice Italians, same prices. Send for circulars.
Geo. W. Coltrin & Son, Mathis, Texas.

ELTON WARNER'S QUALITY QUEENS—Progeny of his famous Porto Rican breeding stock. Write for illustrated price list.
Elton Warner Apiaries, Asheville, N. C.

PACKAGE BEES—Italian or Caucasian queens bred for heavy production. Safe arrival guaranteed. Prices on application.
Sarasota Bee Co., Sarasota, Fla.

LARGE, HARDY, PROLIFIC QUEENS—Three-band Italians and goldens. Pure mating and safe arrival guaranteed. We ship only queens that are top-notchers in size, prolificness and color. After June 1, prices as follows: Untested $1.25 each, 6 for $7; select untested $1.50 each, 6 for $8.50; select tested $3 each. Special prices on larger quantities. Queens clipped free on request. Health certificate with each shipment.
Buckeye Queens, Zoarville, Ohio.

## SWEET CLOVER SEED

Consumers say rich and fine. Atwater Honey.

HUBAM CLOVER SEED—Guaranteed purity; grown by ourselves; certificates of purity and germination furnished. 1 lb, $1.; 5 lbs., $4.50; 25 lbs., $21.25; delivered prices. Write
The Foster Honey Co., Boulder, Colo.

## HONEY AND BEESWAX

Consumers say rich and fine. Atwater Honey.

HONEY FOR SALE—In 60-lb. tins, water white orange, 15c; white sage, 14c; extra light amber sage, 12c; New York State buckwheat, 10c, for immediate shipment from New York. Hoffman & Hauck, Inc.,
Woodhaven, N. Y.

HONEY—Atwater sells fine alfalfa-clover honey, extra strong cases, case of two 60-lb. cans, $12; case of twelve 5-lb. pails, $7.80, all f. o. b. here. Ten-lb pails all sold out; plenty of the others on hand.
E. F. Atwater, Meridian, Idaho.

## SUPPLIES

Consumers say rich and fine. Atwater Honey.

FOR SALE—Cowan reversible extractor No. 15; good shape, $15.
W. H. Hiller, Alluwe, Oklahoma.

BI-BESCO BEE SUPPLIES from the largest supply factory in the Inter-Mountain territory. Bigtimber Bee Supply Co.,
Bigtimber, Mont.

FOR SALE—Hoffman shallow extracting frames, brand new, in original boxes of 100, $3.00. Bert Willard, Plainview, Ark.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
The Colorado Honey Producers' Association,
Denver, Colo.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

## FOR SALE

Consumers say rich and fine. Atwater Honey.

FOR SALE—10-frame hives and supers; practically new; reasonable.
D. S. Powers, Lawton, Mich.

FOR SALE—White and amber extracted honey; also comb honey. Write for prices. State quantity wanted.
Dadant & Sons, Hamilton, Illinois.

1903 DARROW'S QUEENS EXCEL 1922
Read display ad. on page 275.

SELL OR TRADE, now or in fall, complete outfit to produce about 1 car each comb and extracted honey. One of the best outfits in the west. Good reason for selling. Address West, care Colorado Honey Producers' Assn.,
Denver, Colo.

FOR SALE—Long established and profitable retail supply business in the East. Terms reasonable. C., care American Bee Journal.

CLOSING OUT SALE—50 colonies of bees in 2-story, 10-frame, metal top hives, wired foundation. No disease. Strong colonies of Goldens and three-banders, with young queens. With above equipment is included 75 comb-honey supers, 2,000 sections, 25 lbs. foundation, 50 bee escapes and other equipment Moving screens furnished free. Can be shipped by truck. Blue vine location furnished free if desired; $400 takes all of above for quick sale.
S. R Burton, Washington, Ind.

FOR SALE—Supers and other good second-hand bee supplies. Send list of needs.
P. N. Van Horn's Apiary,
West Fall Church, Va.

FOR SALE—Two locations, about 500 colonies bees in good cypress and white pine 10-frame hives. Am moving to another part of the state. R. H. Fryer, Sumatra, Fla.

FOR SALE—New Beeman garden tractor. Will trade for bees.
O. G. Mills & Sons, Bayfield, Wis.

ROBBING PREVENTED or stopped. J. A. B. entrance guards do the trick. Return mail. one $1. John A. Bloomgren,
Ridgway, Pa.

FOR SALE—Modern standard make typewriter, $50: or will trade for bees, queens, honey, or offer. Mrs. Ida Harris,
Box 707, Tuscaloosa, Ala.

FOR SALE—Good second-hand 60-lb cans, two cans to a case, boxed, at 60c per case f. o. b. Cincinnati. Terms cash.
C. H. W. Weber & Co., 2163 Central Ave,
Cincinnati, Ohio.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

## WANTED

Consumers say rich and fine. Atwater Honey.

WOULD LIKE TO BUY some more good honey, some beeswax and also maple syrup. Paul Thomae, 1156 Thi 3t., Milwaukee, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—To trade typewriter for honey extractor. H. N. Boley, Hillsboro, Ia.

WANTED—Honey, section, bulk comb and extracted. Elton Warner, Asheville, N. C.

WANTED—Honey, section, bulk comb and extracted. W. A. Hunter, Terre Haute, Ind.

## SITUATIONS

Consumers say rich and fine. Atwater Honey.

WANTED—Work as assistant in large apiary during summer. Five years experience; age 19. Eldo Scudder, Luverne, N. Dak.

WANTED—Beeman for comb or extracted honey. Give experience, wage and age. Reference either way. Address
R. L. Pennell, Ignacio, Colo.

WANTED—Man who understands extracting and selling honey. State wages and experience in first letter. Begin at once. Address G. D. M., care M. Wright, Johnstonville, Cal.

WANTED—Man to work coming season in our apiaries. State age, experience and wages wanted in first letter; also give reference. The Rocky Mountain Bee Co.,
Box 1319, Billings, Mont.

WANTED—Situation by energetic and industrious young man who wishes to take up bee culture. Would like to work for board and room where a large apiary is kept. State number of colonies.
J. W. O., P. O. Box 344, Eureka, Calif.

WANTED—Man for comb honey production. State age, wages expected, and experience.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—One experienced man, and students or helpers, in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

## REAL ESTATE

Consumers say rich and fine. Atwater Honey.

FOR SALE—Farm; 240 acres, southern Minnesota, 17 miles northeast of Rochester. Highly improved, hog-fenced and cross-fenced; 15 good buildings, windmill, deep well, and good land. Over $4,000 for produce sold last year. Fine location for live stock and bees; 100 pounds of white clover honey per colony each year a certain average. A few colonies of bees and a lot of honey equipment included with farm. Attractive terms. Write at once.
Geo. F. Hayes, Dover, Minn.

FOR SALE—Place of 47 acres 2½ miles from good town with two railroads; one of the best equipped bee farms in the state. Can give long time on part of the purchase price. Will also sell all, or part, of 350 colonies Italian bees, and a full equipment of supers for extracting. Six or eight thousand dollars will swing this proposition, and, for anyone wanting a ready built up, paying business, it will bear investigation. Good outyards already located, and everything "ready to go." But please do not write unless you are fixed for business, as we are busy.
E. S. Miles & Son,
Dunlap, Harrison County, Iowa.

## MISCELLANEOUS

Consumers say rich and fine. Atwater Honey.

PUSH-IN COMB INTRODUCING CAGE, 35c; 3 for $1. It will do the business. See advertisement in April number.
O. S. Rexford, Winsted, Conn.

FOR SALE—Oliver typewriter and Duplex auto knitters; or might trade for Barnes saw, extractor, or what have you?
Nic. Klein, Hudson, Iowa.

## SANCO BEES

**Are better.**

Customers tell us that there are none better. Safe arrival guaranteed; no disease.
2-frame nuclei, with queen, $5.50 ea.
3-frame nuclei, with queen, $6.50 ea.
Orders filled promptly, or when desired. Try our bees and be convinced. You will be more than satisfied. **SANCO BEE COMPANY.**
East Main St., Fredericksburg, O.

## ACHORD'S ITALIANS ARE GOOD BEES

Whether you have only a few colonies or five hundred, we believe you will like them, and they will prove a worthy addition to your yard. They are a bright, hustling, three-banded strain, bred primarily for honey-production, but also for gentleness and color. We have spared neither labor nor expense to make them the very best. We begin shipping about April 15.

**Price of Packages, April and May, F. O. B. Shipping Point, by Express**

1-lb. pkg. $2.25; 25 or more, $2.15; 50 or more $2.00
2-lb. pkg. $3.75; 25 or more, $3.50; 50 or more, $3.35
3-lb. pkg. $5.25; 25 or more, $5.00; 50 or more, $4.85
Add price of queen wanted to package price above.

**Price of Queens, April and May**

Untested, each----------$1.25; 10 or more, $1.15; 25 or more, $1.00
Select untested, each-----$1.35; 10 or more, $1.25; 25 or more, $1.15
Tested, each ----------$2.00; 10 or more, $1.75.

Safe arrival and satisgaction guaranteed.

**W. D. ACHORD, FITZPATRICK, ALA.**

## THAGARD'S ITALIAN QUEENS

BRED FOR QUALITY

The new postal law restricts the importation of queens from Italy, owing to the mite which causes the Isle of Wight disease. Dr. Phillips has examined our imported bees from Italy and reports there is no evidence of the mite, nor Isle of Wight disease.

We are breeding from breeders obtained from the foremost strains in Italy, and mated to our own famous strain. Universities, Agricultural Colleges, Demonstration agents, back-lotters, America's largest honey producers and queen breeders have purchased thousands of our queens bred from our imported stock this spring.

Since the new postal law went into effect the demand is growing greater daily. Why? Because, for the next few years there will be no new blood imported from Italy. In buying our queens you are assured of getting imported stock, and free of disease. Every queen is guaranteed to please you, or your money refunded.

Untested queens, each, 1 to 11, $1.00; 11 to 49, 95c; 50 to 99, 80c; 100 or more, 75c.

**THE V. R. THAGARD CO., Greenville, Ala.**

**QUEEN PRICES**
**Before Aug. 1.**

| | Each |
|---|---|
| 1 to 4, inclusive, | $2.50 |
| 5 to 9, inclusive, | $2.45 |
| 10 or more ---- | $2.40 |

**After Aug. 1.**

| | |
|---|---|
| 1 to 4, inclusive, | $2.00 |
| 5 to 9, inclusive, | $1.95 |
| 10 or more ---- | $1.90 |

Breeding Queens, for the season, $10 each. A card will bring our 1922 catalog.

# QUEENS

The successful beekeeper is the one who has the strongest colonies just as the honey flow opens. Do you know of anything that gives more downright pleasure to the beekeeper than to have all colonies extra strong, to have all hives filled with emerging brood, and to have hives and supers crowded with bees just as the honey flow begins? And when a thunder storm suddenly comes up, doesn't it make one's soul glad to see the beautiful yellow bees pour into their hives in countless hordes so as to darken the sky? If a large percentage of your colonies are not in this condition, there is still something to be desired in your management. In a majority of the cases where indifferent work is accomplished by certain colonies, it is due to old or inferior queens.

Many have noticed a marked increase in the amount of honey secured after purchasing some of our queens and requeening with them or their progeny. Then, again, it is a great pleasure to work with gentle bees. Isn't it a plaguy nuisance to have cross blacks or hybrids and have the pesky things dancing around in front of your face for hours at a time? Our bees are never guilty of such indecorous conduct.

Our cells are built in powerful colonies, made excessively strong by adding brood taken from other colonies, so that the larva in the queen-cell has more royal jelly than it can possibly consume. Scientific research has proved what we have long known in a practical way—the magic of royal jelly. Our embryonic queens have it in abundance. In addition, our queens are not hatched in cell protectors or nursery cages, so that the emerging queen has every opportunity to measure up to the high standard for which our queens are noted.
The strongest guarantee goes with every queen.

**JAY SMITH ROUTE 3 VINCENNES, IND.**

QUEENS
Bright Three-Banded Italian

# PACKAGE BEES

QUEENS
Bright Three-Banded Italian

We are now booking orders for queens and package bees for the season of 1922.
Shipments of queens and package bees this year commenced on March 15, 1922.
All queens are mated in standard full-sized three-frame nuclei.
We are operating four thousand standard full-sized three-frame nuclei.
Capacity and output of queen yards this season is five thousand queens per month.
We own, operate and run for extracted honey in the States of California and Nevada twelve thousand colonies of bees. All of our breeders are selected queens whose colonies led these twelve thousand colonies of bees last season. Better selection of breeders cannot be equaled or had anywhere.
We have the capacity and output of queens and package bees to make shipments promptly as and when promised.
All queens shipped by us in six-hole mailing cages. No small-sized mailing cages used.
We guarantee safe arrival of queens and package bees. Any queens or package bees arriving dead at destination will be replaced without charge.

PRICES AND TERMS
MATED—UNTESTED—QUEENS

| | |
|---|---|
| 1 | $1.00 |
| 6 | 5.50 |
| 12 | 9.60 |
| 13 to 99 | 75c each |
| 100 or more | 70c each |

PACKAGE BEES
Write for Special Price.

TERMS:
10 per cent deposit on booking order. Balance at time of shipment.

References, by permission: The A. I. Root Company, of California, No. 52 Main St., San Francisco, Calif, and No. 1824 East Fifteenth St., Los Angeles, Calif; The Diamond Match Company, Apiary Department, Chico, Calif.; The Western Honey Bee, No. 121 Temple St., Los Angeles, Calif.; Bees and Honey, Hutchinson Building, Oakland, Calif.; The Beekeepers' Review, Lansing, Mich.
Banking reference on request. We respectfully solicit your patronage.

## WESTERN BEE FARMS CORPORATION
(PRINCIPAL)

**Western Honey Corporation** **Western Citrus Honey Corporation**
(ASSOCIATED CORPORATIONS)

**General Offices: Claus Spreckels Building, No. 703 Market St., San Francisco, Cal.**

3000 MONTHLY CAPACITY

# 65c
EACH
## UNTESTED QUEENS

PROMPT SHIPMENT

In order to keep working at full capacity we are making a big cut in the price of

## FOREHAND'S THREE-BANDS
**The Thrifty Kind**

Thirty years of experience go into the rearing of our queens. Select breeding for over a quarter of a century brings them up to a standard *surpassed by none, but superior to many.*

We guarantee pure mating and satisfaction the world over. Safe arrival guaranteed in the United States and Canada.

For the balance of the season we are selling bees in combless packages only. Send in your orders at once.

UNTESTED QUEENS EACH

1, $1.00; 6 to 11, 95c; 12 to 49, 90c; 50 to 99, 85c; 100 to 249, 80c; 250 to 499, 75c; 500 to 1,000, 65c.

Prices quoted on other grades upon application.

POUND BEES

One 1-pound package, $2.00; 25 and over, $1.90
One 2-pound package, $3.50; 25 and over, $3.25
One 3-pound package, $5.00; 25 and over, $4.75

Catalog sent free.

**W. J. Forehand & Sons, Fort Deposit, Alabama**

DON'T DELAY—Get our Prices and we'll get Your Order

# WE SAVE YOU MONEY

## "falcon"

*Supplies, Queens, Foundation*

**W. T. FALCONER MFG. COMPANY, Falconer, (NEAR JAMESTOWN) N. Y., U. S. A.**

*"Where the BEST Beehives come from"*

# We are Prepared to Take Care of your Rush Orders

We ship thousands of pounds of bees all over the U. S. A. and Canada.

Special attention given to small orders.

Queens bred from the best honey gatherers with all other important points taken into consideration.

Safe arrival guaranteed.

Send for special circular for shipping after May 15th. Can take care of your rush orders for shipping before May 15 at the following prices:

1-lb. package, $2.60 each; 25 or more, $2.50 each.
2-lb. package, $3.75 each; 25 or more, $3.60 each.
3-lb. package, $5.25 each; 25 or more, $5.00 each.
2-frame nuclei, $3.75 each; 3-frame nuclei, $5.25 each.
2-frame, with 1 pound extra bees, $5.25 each.
1-frame, with 2 pounds extra bees, $5.25 each.

Queens free when ordering packages.

**Prices of Queens**

Untested, $1.05 each; 25 or more, 91c each; per 100, $85.00.
Select untested, $1.30 each; 25 or more, $1.00 each.
Tested, $1.75 each; 25 or more, $1.50 each.

## NUECES COUNTY APIARIES, Calallen, Tex.

**E. B. Ault, Prop.**

**BARNES' FOOTPOWER MACHINERY**

Read what J. E. Parent, of Chariton, N. Y. says:

"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work."

**W. F. & JOHN BARNES CO.**
**995 Ruby St., ROCKFORD, ILL.**

Our Honey Labels are Good Labels Send for Catalog.
American Bee Journal, Hamilton, Ill.

The Engravings appearing in this publication are made by the

**Waterloo Engraving & Service Co.**
Waterloo, Iowa

Engravers, Electrotypers, Commercial Photographers, Photo Retouchers, Designers

Write if you need designs of Signature Cuts, Letter Heads, Labels, Etc.

# Lumber that Lasts?

## Here's a Convincing Case of an Experienced Beekeeper who—

**(But let the gentleman tell it himself:)**

*BUCK GROVE, IOWA, February 2, 1916.*

*"I have been a Cypress man for lo, these many moons. Almost all my dovetail hives are of Cypress, as are bottom-boards, and I think, shallow telescope covers. My hive stands are of Cypress, and stand in the mud and wet all the time and are as solid as when I got the first one some years ago. Cypress is a trifle heavier than white (cork) pine, but not much more than the heavier grade of pine now used. The fact that it is 'everlasting' compensates for all this." (Signed) A. F. BONNEY, M. D.*

For a job of repairing or for equipment, the lumber that will give you the greatest real investment value in the market is Cypress, commonly known as the "Wood Eternal." This wood does not rot down like most woods; it lasts and lasts and LASTS. and LASTS and LASTS. It is the Gopher Wood of the Bible—Noah built his ark of Cypress. Since the days of Noah, Cypress has been famous for endurance under the most trying conditions. **Cypress is the one certified Greenhouse wood. That's "some" test. Bottom boards are another.**

## GET A BOOK—IT IS FREE

There are 42 volumes in the internationally famous Cypress Pocket Library, and each is authoritative in its field, and all are **FREE.** Vol. 1 is the U. S. Gov't Report on Cypress—that is a good authority, surely. Vol. 4 is the Barn Book, with plans and specifications for building. Vol. 36 is the Carpentry Book, making easy a dozen hard jobs of carpentry. Vol. 19 is the Canoe and Boat Book. Vol. 37 is the Silo Book. All are free for the asking. Suppose you ask for one or a dozen, right away.

## WORTH INVESTIGATING

This Cypress wood matter is worth investigating. Just write our "All-round Helps Department."

**SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION**

1251 GRAHAM BUILDING, JACKSONVILLE, FLA. 1251 POYDRAS BUILDING, NEW ORLEANS, LA

FOR QUICK SERVICE, ADDRESS NEAREST POST OFFICE

# JUST OFF THE PRESS

## A NEW EDITION

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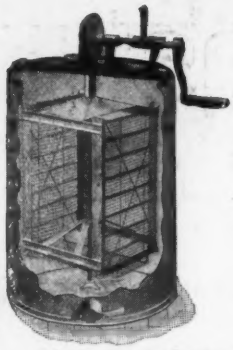

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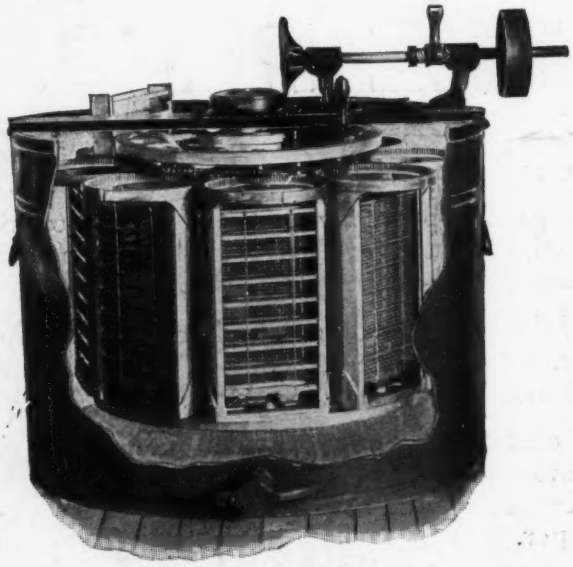

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